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ABSTRACT

Components of word analysis and synthesis that are important for vocabulary development instruction are word structure and morphemes. Morpheme study includes bases, prefixes, suffixes, epenthetic elements, and affixation processes. Word structure includes capitalization, abbreviations, contractions, number, possessives, and affixed words. (Extensive appendixes include numerous illustrations of each kind of word structure and morpheme. The appendixes include pronunciations, pronunciation variations, meanings, function, and exemplars.) (Author/TJ)

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SPECIFICATIONS OF CONTENT FOR INSTRUCTION IN WORD ANALYSIS AND SYNTHESIS

Mary Rhode and Bruce Cronnell

ABSTRACT

Content for vocabulary instruction in word analysis and synthesis is specified. Word structure includes capitalization, abbreviations, contractions, number, possessives, and affixed words. Morpheme study includes bases, prefixes, suffixes, epenthetic elements, and affixation processes.

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SPECIFICATIONS OF CONTENT FOR INSTRUCTION IN WORD ANALYSIS AND SYNTHESIS[1]

Mary Rhode and Bruce Cronnell[2]

Knowledge of word parts is essential for both decoding and encoding new words (Humes, 1976b). By analyzing the parts of unknown words, readers and listeners can comprehend the meaning of the whole. By synthesizing known word parts, writers and speakers can "create" new words not already in their active vocabulary. Thus word analysis and synthesis form an important component in vocabulary development instruction.

Humes (1976a) specified two components of word analysis and synthesis that are important for vocabulary development instruction: Word structure; Roots, affixes, and affixation processes. Because of the similarities of these two components, they have been combined in the present paper, and organized into four sections:

Word Structure

Bases (i.e., roots)

Affixes (prefixes, suffixes, and epenthetic elements)

Affixation Processes

Each of these four sections is discussed in the following pages, and each is exemplified more fully in an appendix. However, these sections

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[1]This is one of five papers documenting the specifications for vocabulary development instruction. The present paper and the papers on vocabulary from context and alternative language specify the requirements for a skills-based vocabulary program. The papers on synonyms and subject-area vocabulary specify the requirements for supplementary instruction.

[2]Rhode prepared all sections of this paper other than Word Structure, which was prepared by Cronnell.

cannot be treated separately in instruction; before instruction is developed, steps must be taken to coalesce these sections into an integrated sequence.

WORD STRUCTURE

Instruction in word structure is concerned primarily with decoding words that can be related to what is already known. Frequently word structure provides only partial meaning or a general semantic clue, but this is better than no meaning at all. Knowledge of word structure (as defined here) is, for the most part, of value to reading.

Capitalization

Capitalization can clue meaning because it marks proper nouns as distinct from common nouns. This is particularly true for semantically distinct proper and common noun usage; e.g., March-march. Appendix A lists some examples of such proper-common pairs.

Abbreviations

There are many common abbreviations for words found in students' vocabularies. Instruction on the recognition and interpretation of abbreviations can help students determine the full forms, which they already know. There are four ways that abbreviations can be formed:

1. with the first letter(s) of the word; e.g., p. for page, m.p.h. for miles per hour, cu. for cubic, adj. for adjective, chap. for chapter, lieut. for lieutenant;
2. with the first and last letter(s) of the word; e.g., pd. for paid, amt. for amount, agcy. for agency;

3. with the first and middle (and sometimes last) letter(s) of the word; e.g., dz. for dozen, hgt. for height, Blvd. for Boulevard;
4. with letter(s) from outside the word; e.g., no. for number, lb. for pound; this is rare.

A complicating factor is that a single abbreviation may represent two or more different words; e.g., sec. for second and secretary, m. for male, meter, mile, minute, month, and moon. In addition, many words have more than one possible abbreviation; e.g., California may be abbreviated as Ca., CA, Cal., or Calif. A set of abbreviations, based on full forms found in Rhode and Cronnell (1977) is found in Appendix A.

Contractions

Contractions, like abbreviations, are shortened forms of words that may be familiar to students if the components can be determined. The most common contractions are (1) personal pronouns plus auxiliary verbs ('s from is or has, 'm from am, 're from are, 'll from will, 've from have, and 'd from had or would) and (2) auxiliary verbs plus n't (from not). A set of these contractions, as found in Rhode and Cronnell (1977) is listed in Appendix A.

Number

Plural forms mark the semantic feature "more than one" and thus can provide partial meaning to an unknown word. In general, a final s or es signals a plural in English, but there are a few

Latin and Greek forms that complicate recognition plurals. For example, crises may look like the plural of a form cris, but is really the plural of the familiar word crisis. A small set of words with common Latin and Greek plural forms is listed in Appendix A.

Possessives

Possessives mark the semantic feature "owns/possesses" and thus, like plurals, can provide partial meaning to an unknown word. Possessives are marked by 's or ' added to a noun.

Affixed words

Words with affixes (prefixes or suffixes) may not be known by readers (or listeners) as units, although the root word may be known; e.g., quietism may be an unfamiliar word, although quiet would be familiar even if the suffix -ism were not. Recognition of the known root word within the unknown affixed word may help establish a meaning base for comprehension; e.g., quietism must mean something about being quiet. Unless the meaning of the affix is known, it will not provide any information. (Affix meaning and use is treated in the following sections.)

BASES, AFFIXES, AND AFFIXATION PROCESSES

Instruction in morphemes and morpheme-combining processes is concerned first with the decoding skills of word analysis. Encoding skills result from the knowledge gained about the morphemic components, their meanings, and their functions.

The data base used was the 10,000 word SWRL Communication Skills Lexicon (Rhode and Cronnell, 1977), which was analyzed to obtain these sections of the word analysis and synthesis instruction. Because current vocabulary instruction is designed for grades 4-8 and inflectional suffixes are known before grade 4, only derivational suffixes are included in this analysis.

Selection of bases and affixes

A set of bases was obtained by comparing the following information about each base:

1. Rank (frequency of occurrence in different words) in the above lexicon.
2. Rank (frequency of occurrence in different words) in the Lindsay (1925) study of the 10,000 words in Thorndike.
3. Number of primary base words that are not reducible in the above lexicon; e.g., affect.
4. Number of additional affixed forms in the above lexicon; e.g., affection, affectionate, affectionately.

A set of prefixes was obtained by comparing:

1. Rank (frequency of occurrence in different words) in the above lexicon.

2. Occurrence frequency in words ranking 1-1000 in Thorndike and Lorge (1944).
3. Number of meanings indicated in Ayers (1965), Durkin (1976), Ehrlich and Murphy (1975), Hixson and Colodny (1946), and Thomas and Robinson (1972).

A set of suffixes was obtained by comparing:

1. Rank (frequency of occurrence in different words) in the above lexicon.
2. "Commonness score" in Thorndike (1941).
3. Number of meanings indicated in Ayers (1965), Hixson and Colodny (1946), and Thorndike (1941).

Compilation of data

Orthographic, phonological, morphological, and etymological information was compiled for bases and affixes by consulting Partridge (1958), Skeat (1963, Second Impression), and *The American Heritage dictionary of the English language* (1969).

Information about each base (see Appendix B) includes the following

1. All spellings and pronunciations.
2. Explanations of any spelling and/or pronunciation variation.
3. Original Latin or Greek meaning.
4. Exemplars, including compounds (if appropriate) with both bases indicated.

Analysis of affixes is divided into three parts: prefixes, suffixes, and epenthetic elements.

Information about each prefix (see Appendix C, part I) includes the following:

1. All spellings and pronunciations.
2. Descriptions of any spelling and/or pronunciation variation.
3. Current meaning(s).
4. Post-occurring prefixes; i.e., those prefixes which may follow the listed prefix.
5. General description of the kinds of bases with which the prefix occurs; e.g., bound/free, productive/unproductive, mono/bimorphemes.
6. Affixation process occurring with the prefix.
7. Frequency: A relative frequency scale of 1-10 (10 being the highest) was established by comparing the frequency of occurrence in the lexicon with frequency of occurrence in the words ranking 1-1000 in Thorndike and Lorge (1944).
8. Exemplars.

Information about each suffix (see Appendix C, part II) includes the following:

1. All spellings and pronunciations.
2. Descriptions of any spelling and/or pronunciation variation.
3. Current meaning(s).
4. Function; i.e., part of speech.
5. General description of the kinds of bases with which the suffix occurs; e.g., bound/free, productive/unproductive, mono/bimorphemes.

6. Pre-occurring suffixes; i.e., those suffixes which the listed suffix may follow.
7. Post-occurring suffixes; i.e., those suffixes which may follow the listed suffix.
8. Pre-occurring and/or post-occurring epenthetic elements; i.e., units inserted either between a base and suffix (e.g., regular) or between two bases of a Latin or Greek compound (e.g., spectograph).
9. Affixation processes specifically occurring with the suffix.
10. Frequency: A relative frequency scale of 1-10 (10 being the highest) was established by comparing the frequency of occurrence in the lexicon with frequency of occurrence in the words ranking 1-2900 in Thorndike (1941).
11. Exemplars.

Information about each epenthetic element (see Appendix C, part III) includes the following:

1. Spelling and pronunciations.
2. Explanation of any pronunciation variations.
3. General description of the kinds of bases with which the epenthetic element occurs.
4. Pre-occurring suffixes.
5. Post-occurring suffixes.
6. Pre-occurring and/or post-occurring epenthetic elements.
7. For those epenthetic elements that serve as connectors in compounds, co-occurring bases.

Information about many processes (see Appendix D) that are caused by, or are related to, affixation includes:

1. Description of the process, including any appropriate pronunciation or spelling changes.
2. General description of bases with which each process occurs.
3. If appropriate, the prefixes, suffixes, or epenthetic elements involved in the process or occurring in the environment.
4. In the case of each process, other affixation processes that occur in the same words.
5. Relative frequency of occurrence in the lexicon on a scale from 1 to 13.

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APPENDIX A

WORD STRUCTURE

I. Capitalization

Art/art
Bill/bill
Bob/bob
Brad/brad
Carol/carol
China/china
Dale/dale
Don/don
Frank/frank
Ginger/ginger
Grace/grace
Holly/holly
Jack/jack
Jay/jay
March/march
Mark/mark
May/may
Mike/mike
Miss/miss
Nick/nick
Pat/pat
Penny/penny
Polish/polish
Ray/ray
Rob/rob
Robin/robin
Rose/rose
Sandy/sandy
Sue/sue
Turkey/turkey
Van/van
Yank/yank

II. Abbreviations

1. First letter of word

   a. one full form
      E: East
      g: gram*

   b. more than one full form
      h: height*, high, hour*
      I: Island, Isle
      l: left, length
      L: Lake
      m: male, meter, mile*, minute*, moth*, moon
      n: noon, noun
      N: North*
      p: page*, pint*
      q: quart*, question*
      r: right*
      R: River*
      s: second
      S: South*
      t: teaspoon*, time, ton
      T: tablespoon*
      v: verb*, very
      w: week*, weight*, wide, width, with
      W: West
      y: yard*, year*

2. First letter of each word in phrase or compound

   B.C.: British Columbia
   CIA: Central Intelligence Agency
   FBI: Federal Bureau of Investigation
   HQ: headquarters
   mph: miles per hour
   N.B.: New Brunswick
   N.C., NC: North Carolina
   N.D., ND: North Dakota*
   N.H., NH: New Hampshire
   N.J., NJ: New Jersey
   N.M., NM: New Mexico
   N.S.: Nova Scotia
   N.W.T.: Northwest Territories
   N.Y., NY: New York
   P.E.I.: Prince Edward Island
   PR: Puerto Rico
   R.I., RI: Rhode Island
   RR: railroad

2. (con't.)

   S.C., SC: South Carolina
   S.D., SD: South Dakota*
   SS: steamship
   U.S.: United States
   WV: West Virginia*
   Y.T.: Yukon Territory

3. First two letters of word

   a. one full form
      AL: Alabama*
      AR: Arkansas*
      br: brown
      bu: bushel
      CA: California*
      ch: chapter*
      cl: class
      CO: Colorado*
      Cr: Creek
      cu: cubic
      DE: Delaware
      Dr*: Drive
      ea: each
      ex: example
      FL: Florida*
      IL: Illinois
      Ir: Irish
      Gr: Greek
      It: Italian*
      MA: Massachusetts*
      mo*: month
      No*: North
      OH: Ohio
      OK: Oklahoma*
      OR: Oregon*
      Pa., PA: Pennsylvania*
      pr*: price
      sm: small
      So: South*
      sq: square
      Th: Thursday*
      UT: Utah
      WA: Washington*
      WI: Wisconsin*
      WY: Wyoming*

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*Alternate abbreviation or full form on this list.
Note: Periods have been generally omitted.

b. more than one full form

ar: arrive*, arrival*
av: average*
Av: Avenue
Co: Company, County
ed: edition, editor, education*
fr: from
Fr: French
gr: grade, gram*
Gr: Greek
ID: Idaho, identification
in: inch
IN: Indiana*
mi: mile*
MI: Michigan*
pl: place, plural
st: state
St*: Street

4. First three letters of word

a. one full form

adj: adjective
adv: adverb
Ala: Alabama*
alt: altitude
ans: answer
Apr: April
Ark: Arkansas*
Aug: August
aux: auxiliary
Ave: Avenue*
bro: brother
bus: business
Cal: California*
Can: Canada
cap: capital
cyl: cylinder
Del: Delaware*
Dec: December
deg: degree
dia: diameter*
div: division
doz: dozen*
esp: especially
est: estimate
Feb: February
fig: figure
Fla: Florida
Fri: Friday
fut: future
gal: gallon
Gen: General
Ger: German
Hon: Honorable
Ill: Illinois*
Ind: Indiana*
ins: insurance
Jan: January
lat: latitude
lav: lavatory
liq: liquid
lit: literature
mag: magazine
Maj: Major
Man: Manitoba
Mar: March
max: maximum
Mex: Mexico
mil: military
Mon: Monday
nav: naval
N. Dak: North Dakota*
Neb: Nebraska
neg: negative
Nev: Nevada
Nov: November
Oct: October
Ont: Ontario
opp: opposite
Ore: Oregon*
pop: population
pub: publisher
Que: Quebec
rad: radius
reg: region
Rep: Republican
Riv: River*
Sat: Saturday
sch: school
sci: science
So. Dak: South Dakota*
Sep: September*
Sun: Sunday

syn: synonym
Tex: Texas*
Thu: Thursday*
tot: total
Tue: Tuesday*
veg: vegetable
vol: volume
Wed: Wednesday
Wis: Wisconsin*
Wyo: Wyoming*

b. more than one full form
arr: arrive*, arrival*
col: college, colonel, color, column
Dem: Democrat, Democratic
Eng: England, English
gov: government*, governor
leg: legal, legislature
med: medical, medicine, medium
min: minimum, minute*
nat: national*, native, natural
sec: second*, secretary*
Sen: Senate, Senator, Senior*
tel: telegram, telegraph telephone

5. First four letters of word

a. one full form
abbr: abbreviation
Ariz: Arizona
biog: biography
capt: captain
cent: century
chap: chapter*
Colo: Colorado
conf: conference
Cong: Congress
conj: conjunction
Conn: Connecticut*
cons: consonant
corp: corporation
diam: diameter*
dict: dictionary
diff: difference
disc: discount
elem: elementary
ency: encyclopedia
exec: executive
fict: fiction
grad: graduate
hosp: hospital
Ital: Italian*
junc: junction*
Kans: Kansas*
lang: language
long: longitude
Mass: Massachusetts*
meas: measure
Mich: Michigan*
Minn: Minnesota*
misc: miscellaneous
Miss: Mississippi*
Mont: Montana*
Nebr: Nebraska*
Okla: Oklahoma*
Oreg: Oregon*
orig: original
Penn: Pennsylvania*
pref: prefix
prep: preposition
prob: problem
pron: pronoun
prov: province
publ: publication
ques: question*
rect: rectangle
Sask: Saskatchewan
sect: section
Sept: September*
Serg: Sergeant*
sing: singular
subj: subject
suff: suffix
temp: temperature
Tenn: Tennessee*
Terr: Territory
thou: thousand
Tues: Tuesday*
Univ: University
Wash: Washington*
Wisc: Wisconsin

b. more than one full form
Amer: America, American
chem: chemical, chemistry
comp: composition, compound
diag: diagonal, diagram
dist: distance, district
educ: education*, educational
elec: electric, electrical, electricity
geog: geographic, geography
pres: present, president

6. First five or six letters of word

a. one full form
arith: arithmetic
Calif: California*
contr: contraction
encyc: encyclopedia*
interj: interjection
irreg: irregular
lieut: lieutenant
Penna: Pennsylvania*
psych: psychology
Thurs: Thursday
therm: thermometer
vocab: vocabulary

b. more than one full form
agric: agriculture, agricultural
treas: treasurer, treasury

7. First letter and last letter of word

a. one full form
CT: Connecticut
dk: dark
dn: down
do: ditto
Dr*: Doctor
Ga, GA: Georgia
Gk: Greek*
gm: gram
HI: Hawaii
hr: hour*
ht: height*
Ia, IA: Iowa
jr: junior
KS: Kansas*
Ky, KY: Kentucky
La, LA: Louisiana
Md, MD: Maryland
Me, ME: Maine
Mt*: Mount
pd: paid
pr*: pair
pt: part, pint*, point, port
qt: quart*
rd: road, round
rm: room
rt: right
sr: senior*
St*: Saint
Va, VA: Virginia
vb: verb*
Vt, VT: Vermont
wd: word
wk: week*
wt: weight*
W Va: West Virginia
yd: yard*

b. more than one full form
ft: feet, foot, fort
lt: lieutenant*, light
pk: park, peak, peck
yr: year*, your

8. First two or three letters and last letter of word

agt: agent
amt: amount
apt: apartment
assn: association
asst: assistant
attn: attention
atty: attorney
blk: black, block
dept: department
govt: government*
natl: national*
secy: secretary*
supt: superintendent

9. First one or two letters and last two letters

agcy: agency
Alta: Alberta
hvy: heavy
rnd: round
rte: route

10. First letter(s) and last letter(s) before final e in word

avg: average
dbl: double
lg: large
lv: leave
pg: page*

11. First letter(s) and other letters of word

a. first and middle
AK: Alaska
asg: assignment*
AZ: Arizona*
cm: centimeter
CN: Connecticut
dz: dozen*
jct: junction*
MN: Minnesota*
MS: Mississippi*
Mo, MO: Missouri
MT: Montana*
mt: mountain
NB: Nebraska*
NV: Nevada*
TN: Tennessee*
TX: Texas
tsp: teaspoon

b. first, middle, and last
asgnt: assignment*
bkgd: background
bldg: building
ctr: center
frwy: freeway
hdqrs: headquarters
hgt: height*
hwy: highway
ltd: limited
mdnt: midnight
mfr: manufacture, manufacturer
mgr: manager
mgt: management
pkg: package
pkwy: parkway
pmt: payment
Pvt: Private
rwy: railway
Sgt: Sergeant*
svgs: savings
tchr: teacher
tkt: ticket
tpk: turnpike
whs, whse: warehouse
whsle: wholesale

c. First, two middle

tbs, tbsp: tablespoon*

d. First, two middle, and last

Blvd: Boulevard
Nfld: Newfoundland

12. Letter(s) from outside of word

ff: following
lb: pound
no: number
oz: ounce

III. Contractions

pronoun + be	pronoun + will	pronoun + have/has
he's	he'll	he's
I'm	I'll	I've
it's	it'll	it's
she's	she'll	she's
they're	they'll	they've
we're	we'll	we've
you're	you'll	you've

pronoun + had/would	verb + not
he'd	aren't
I'd	can't
it'd	couldn't
she'd	didn't
they'd	doesn't
we'd	don't
you'd	hadn't
	hasn't
	haven't
	isn't
	musn't
	shouldn't
	wasn't
	weren't
	won't
	wouldn't

IV. Number

Latin and Greek plurals

a - ae

alga
alumna
antenna
formula
larva
pupa
vertebra

is - es

analysis
antithesis
axis
crisis
diagnosis
ellipsis
emphasis
neuosis
parenthesis
oasis
synopsis

um - a

addendum
bacterium
compendium
datum
dictum
fulcrum
medium
ovum
spectrum
symposium

us - i

alumnus
cactus
focus
fungus
locus
nucleus
radius
stimulus

ex/ix - ices

appendix
index
matrix
vertex

on - a

criterion
lexicon
phenomenom

APPENDIX B

BASES [1]

1. ann, ənn

Pronunciations: /æn/, /ɛn/; /ən/.

Pronunciation and spelling variations: spelling of base vowel changes from a to e following most prefixes; vowel alternates with changes in stress.

Meaning: year.

Exemplars: annals, annual, superannuate; biennial, triennial; centennial, millennium, perennial; annuity; anniversary.

2. capt$_1$, capit

Pronunciations: /kæpt/, /kæpš/, /kæpət/; /kəpɪč/.

Pronunciation and spelling variations: alternate spelling with a vowel inserted before the final consonant; final consonant is palatalized to /š/ before -ion and to /č/ before -ul-.

Meaning: head.

Exemplars: captain, caption; capital, decapitate; capitulate.

3. capt$_2$

Pronunciations: /kæpt/, /kæpč/.

Pronunciation variation: final consonant is palatalized to /č/ before -ure.

Meaning: take, hold.

Exemplars: captive, captor, capture.

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[1] The following notes apply also to Appendices C and D:

All unstressed vowels are represented by schwa (/ə/), although some may receive tertiary stress and/or may be pronounced /ɪ/.

Pronunciation changes that result from affixation of a free base are not reflected here; e.g., de-stressing of a base vowel or palatalization of a base-final consonant.

Pronunciations and exemplars in parentheses represent variations that exist in the English language, but were not judged useful for instruction. Usually the bases in such exemplars are not very productive.

When compounds are listed as exemplars, both bases are underlined.

4. ced(e), ceed, cess

Pronunciations: /sid/, /siǰ/, /sɛs/.

Pronunciation and spelling variations: spelling of base vowel with final /d/ alternates between long primary vowel with final silent e and long secondary vowel, but pronunciation does not change; prefixed base with final d is usually a verb; prefixed base with final ss is usually a noun; final consonant is palatalized to /ǰ/ before -ure.

Meaning: go.

Exemplars: accede, concede, intercede, precede, recede, secede, procedure; exceed, proceed, succeed; access, excess, process, recess, success.

5. $cid(e)_1$

Pronunciations: /sayd/, /siǰ/; /səd/.

Pronunciation variations: base vowel alternates with stress change; final consonant palatalizes to /ǰ/ before unstressed u.

Meaning: fall.

Exemplars: coincide, deciduous; accident, accidence, incident, incidence, occident.

6. $cid(e)_2$, cis(e), scis

Pronunciations: /sayd/, /sayz/, /says/, /siz/.

Pronunciation and spelling variations: final consonant alternates; palatalizing suffix changes vowel to short i and final consonant to voiced /ž/, e.g., decision; one base has initial sc /s/.

Meaning: cut.

Exemplars: decide; excise, incise, precise, scissors; circumcise.

7. circ(um)

Pronunciations: /sʌrk/, /sʌrkəm/; /sərkʌm/.

Pronunciation variations: in two-syllable base, stress shifts from first to second vowel when it is followed by two syllables.

Meaning: circle, around.

Exemplars: circle, circuit, circus; circumcise, circumscribe, circumspect, circumstance, circumvent; circumference.

8. cur(r), curs, cour(se)

Pronunciations: /kʌr/, /kur/, /kər/, /kʌrs/, /kʌrž/, /kors/.

Pronunciation and spelling variations: final consonant is palatalized and voiced to /ž/ before -ion; when vowel is u and final base consonant is not word-final, the consonant doubles or s is added; base vowel sometimes retains the French spelling of ou; also functions as a free base, i.e., course.

Meaning: run.

Exemplars: concur, incur, occur, recur; current, curriculum; cursory, precursor, excursion; courier.

9. dic(t)

Pronunciations: /dɪk/, /dɪkt/, /dɪkš/; /dək/.

Pronunciation and spelling variations: base vowel alternates with stress change; base-final t is palatalized to /š/ before -ion.

Meanings: say, declare.

Exemplars: predicament; addict, edict, predict, dictate, diction; dedicate, indicate, predicate.

10. duc(e), duct

Pronunciations: /dus/, /dʌkt/; /jək/.

Pronunciation and spelling variations: base-final c is spirantized to /s/ before word-final e; base vowel alternates; base-initial d palatalizes to /j/ when base vowel is unstressed.

Meaning: lead.

Exemplars: deduce, induce, produce, reduce, seduce; conduct, deduct, induct, ductile; educate.

11. fac(t), fect

Pronunciations: /fæk/, /fæs/, /fækt/, /fækš/, /fækč/, /fɛkt/; /fəkt/.

Pronunciation and spelling variations: base-final c is spirantized to /s/ before suffix with initial i; final consonant t palatalizes to /š/ before -ion and to /č/ before -ure; base vowel had two spellings and its pronunciation alternates with stress change.

Meaning: make.

Exemplars: faculty, facile; factor, factory, faction; affect, defect, effect, infect, perfect (verb); perfect (adjective); artifact, manufacture.

12. fer

Pronunciations: /fʌr/, /fɛr/; /fər/.

Pronunciation variation: base vowel alternates with stress change.

Meaning: carry.

Exemplars: confer, defer, infer, prefer, refer, transfer, fertile; ferry: differ, offer, suffer; circumference.

13. fic(e), fit

Pronunciations: /fays/, /fɪš/; /fəs/, /fək/, /fət/.

Pronunciation and spelling variations: base-final c is spirantized /s/ before word-final e; base vowel alternates with stress change; final consonant c palatalizes to /š/ before -i-ent; Latin-based spelling varies.

Meaning: make.

Exemplars: suffice, efficient; office, difficulty; profit, (benefit).

14. fin(e)

Pronunciations: /fayn/, /fɪn/.

Pronunciation variations: base vowel alternates and is short before certain suffixes (e.g., -ish).

Meaning: end.

Exemplars: confine, define, refine, final, finance, finery, finite; affinity, finial, finish.

15. form

Pronunciation: /form/.

Meaning: form.

Exemplars: conform, inform, perform, reform, transform, uniform, formulate.

16. fort

Pronunciations: /fort/; /fərt/.

Pronunciation variation: base vowel alternates with stress change.

Meaning: strong.

Exemplars: fortress, fortify, fortitude; comfort, effort.

17. gen(er)

Pronunciations: /ǰɛn/, /ǰin/, /ǰɛnər/.

Pronunciation variation: base vowel alternates and is short when followed by two syllables.

Meanings: family, race, breed, kind.

Exemplars: gentle, genuine; genial, genius; general, generate, generous.

18. gon

Pronunciation: /gan/.

Meaning: angle.

Exemplars: decagon, hexagon, octagon, pentagon, polygon.

19. graph

Pronunciation: /græf/.

Meaning: write.

Exemplars: graphic, graphite, monograph, paragraph, polygraph, telegraph.

20. ject

Pronunciations: /ǰɛkt/, /ǰɛkč/; /ǰəkt/.

Pronunciation variations: base vowel alternates with stress change caused by affixation or by change in form class from verb to noun; final t is palatalized to /č/ before -ure.

Meaning: throw.

Exemplars: eject, inject, interject, object (verb), reject, subject (verb), dejected; conjecture; adjective, subject (noun).

21. lat(e)

Pronunciations: /let/, /lət/.

Pronunciation variations: base vowel alternates with change in stress

Meanings: carry, bear.

Exemplars: collate, elate, relate, translate; prelate, superlative; legislate.

22. lect, leg_1, lig

Pronunciations: /lɛkt/, /lɛkč/, /lɛkš/, /lɛǰ/, /lij/; /ləǰ/, /ləg/.

Pronunciation and spelling variations: base vowel alternates with stress change and spelling change; spelling from Latin base varies; final g of base is /ǰ/ before most suffixes beginning with i or e; final t palatalizes to /č/ before -ure and to /š/ before -ion.

Meanings: choose, gather.

Exemplars: collect, elect, intellect, (neglect), select; lecture, predilection; legible, legion; diligent, eligible, intelligent, intelligible, (negligent), (negligible); elegant.

23. leg_2(e)

Pronunciations: /lig/, /lɛg/, /lɛǰ/; /ləg/, /ləǰ/

Pronunciation variations: base vowel alternates with stress change; final g is /ǰ/ before word-final e or before medial i.

Meaning: law.

Exemplars: legal, legacy; legation, delegate, relegate, college, legitimate; legislate, (privilege).

24. log(ue)

Pronunciations: /ləǰ/, /lɔg/; /ləǰ/.

Pronunciation and spelling variations: in word-final position, base vowel o is /ɔ/ and final /g/, which has historically been spelled gue, is now frequently spelled g; base-final g is /ǰ/ before a suffix with initial i, e, or y; when base is not word-final, vowel alternates with stress change.

Meanings: speech, description, science.

Exemplars: logic; (catalog), (dialog), (epilogue), monolog, prologue; (apology), (astrology), (geology), logistics, trilogy, syllogism; logograph, (logarithm), travelog.

25. man

Pronunciations: /mæn/; /mən/.

Pronunciation variation: base vowel alternates with stress change.

Meaning: hand.

Exemplars: (manacle), manage, manner, manual; manure, (maneuver), (manipulate); (manicure), manufacture, manuscript.

26. met(e), meas, mens(e)

Pronunciations: /mit/, /mɛž/, /mɛns/, /mɛnš/; /mət/.

Pronunciation and spelling variations: spelling (from Greek and Latin bases) varies; vowel alternates with stress change caused by compounding or affixation; final s palatalizes to /ž/ before -ure and to /š/ before -ion; also functions as a free base, i.e., mete.

Meaning: measure.

Exemplars: meter, symmetry; measure; immense, commensurate, dimension; (arithmetic), speedometer.

27. min(im)

Pronunciations: /mayn/, /mɪn/, /mɪnəm/.

Pronunciation variations: base vowel alternates and is short when followed by two syllables, and when followed by certain suffixes (e.g., -ish).

Meanings: less, small.

Exemplars: minor, minus, minister, (minnow), (minute), diminish, mince; minimize, (minimum).

28. mit, miss, mise

Pronunciations: /mɪt/, /mɪs/, /mɪš/, /mayz/; /məs/.

Pronunciation and spelling variations: spelling from Latin base varies; base vowel may alternate with stress change; in bases with final se, the i, s, and/or stress may vary; bases having final t or ss are stressed when word contains only one affix; final consonant palatalizes to /š/ and is always spelled ss before -ion.

Meaning: send.

Exemplars: admit, commit, emit, omit, permit, remit, submit, transmit, intermittent; missile, missive, dismiss; mission, permission; demise; premise, promise, commissar, commissary, emissary.

29. pend, pens(e)

Pronunciations: /pɛnd/, /pɛns/, /pɛnš/; /pənd/, /pəns/.

Pronunciation and spelling variations: base vowel may alternate when both prefix and suffix(es) are added; final consonant palatalizes to /š/ and is always spelled s before -ion; Latin-based spelling varies.

Meaning: hang.

Exemplars: append, depend, expend, suspend, pendant; dispense, expense, propensity; recompense; suspension, pension; perpendicular, compensate.

30. phon(e)

Pronunciations: /fon/, /fan/; /fən/.

Pronunciation variations: base vowel alternates with stress change, and is short before the suffix -ic; also functions as a free base, i.e., phone.

Meaning: sound.

Exemplars: (phoneme), telephone, phonics; phonetic, antiphony, (euphony), symphony; phonology.

31. ple(n), plet(e), ply$_1$

Pronunciations: /plɛn/, /plit/, /play/; /plə/, /plət/.

Pronunciation and spelling variations: base vowel alternates with stress change caused by affixation; spelling from Latin base varies.

Meaning: full.

Exemplars: plenary, plenty, replenish; complete, deplete, replete; comply, supply; complement, implement, supplement; expletive.

32. pl(y)$_2$, ple(x), plic(e)

Pronunciations: /play/, /plɛks/, /plɛkš/, /plɪs/; /pəl/, /plək/, /pləs/.

Pronunciation and spelling variations: base vowel alternates with stress change caused by multiple affixation; spelling from Latin base varies; base final y usually changes to i before suffixes; final consonant x /ks/ is palatalized to /kš/ before -ion.

Meanings: fold, bend.

Exemplars: apply, imply, multiply, reply; pliant, pliable, pliers; complex, duplex, perplex, triplex; complexion; duple, (double), multiple, quadruple, (simple), supple, triple; complicate, duplicate, explicate, implicate, replicate, supplicate, triplicate, inexplicable; explicit, implicit, complicity; accomplice.

33. pol

Pronunciations: /pal/; /pəl/.

Pronunciation variation: base vowel alternates as stress changes with different suffixes.

Meanings: city, state.

Exemplars: politic, policy; police, (metropolis).

34. port

Pronunciations: /port/.

Meaning: carry.

Exemplars: deport, export, import, report, support, transport, portable, portage, porter, portly, comportment, important, importance.

35. pos(e), pon(e)

Pronunciations: /poz/, /paz/, /pon/; /pəz/.

Pronunciation and spelling variations: when final consonant is s and base if word-final (with silent e) or when final consonant is n, vowel is long; in other environments, vowel alternates with varied affixation; Latin-based spelling varies.

Meaning: put.

Exemplars: compose, depose, dispose, expose, impose, oppose, propose, repose, suppose, transpose; positive, deposit; postpone, component, exponent, opponent, proponent; position.

36. reg, rect

Pronunciations: /reg/, /reǰ/, /rig/, /riǰ/, /rekt/.

Pronunciation and spelling variations: spelling from Latin base varies; base vowel alternates with stress change; base-final g is /g/ before a or u, and is /ǰ/ before i or e.

Meaning: guide, rule; right.

Exemplars: regular, regulate; (regimen), regiment; regal; regent, region; correct, direct, erect, rectify, rectitude, rector.

37. scrib(e), script

Pronunciations: /skrayb/, /skrib/, /skript/, /skripč/.

Pronunciation and spelling variations: base vowel alternates; vowel is long when base is word-final with silent e; and is short when base is word-initial or when base is spelled with final pt; base-final t is palatalized to /č/ before -ure; also functions as a free base, i.e., scribe.

Meaning: write.

Exemplars: ascribe, conscribe, describe, inscribe, prescribe, postscribe, subscribe, transcribe; scribble; conscript, (postscript), subscript, (superscript), transcript; scripture; manuscript.

38. serv(e)

Pronunciations: /ˈsʌrv/, /zʌrv/.

Pronunciation variations: base vowel alternates with stress change; base-initial s is pronounced /ʒ/ following vowel-final prefix or ob-, and is pronounced /s/ following other consonant-final prefixes; also functions as a free base, i.e., serve.

Meaning: serve.

Exemplars: conserve, subservient; deserve, observe, preserve, reserve.

39. sid(e)

Pronunciations: /sayd/, /sɪd/, /zayd/, /səd/.

Pronunciation variations: base vowel alternates with stress change; base-initial s is pronounced /z/ following vowel-final prefix.

Meaning: sit.

Exemplars: subside; preside, reside; insidious; dissident.

40. spec(t), spic

Pronunciations: /spɛk/, /spɛs/, /spɛš/, /spiš/, /spɛkt/, /spɪk/; /spək/.

Pronunciation and spelling variations: base-initial s is deleted when preceded by ex-; base-final c is pronounced /s/ only when followed by -ify, and is palatalized to /š/ when followed by -i-al; Latin-based spelling varies.

Meaning: look at.

Exemplars: speculate; specify, (specimen); special; species; aspect, expect, inspect, prospect, respect, suspect, spectacle, spectator, specter, (spectrum), perspective; conspicuous; perspicuity; circumspect.

41. stant, stanc(e)

Pronunciations: /stæt/, /stæns/; /stənt/, /stəns/.

Pronunciation and spelling variations: base vowel alternates with stress change; base-initial s is deleted when preceded by ex-; Latin-based spelling varies.

Meaning: stand.

Exemplars: extant; constant, distant, instant, substantive; constance, distance, instance, substance; circumstance.

42. struct, stroy

Pronunciations: /strʌkt/, /strʌkč/, /stroy/.

Pronunciation and spelling variations: base-final consonant palatalizes to /č/ before -ure; spelling from Latin base varies.

Meanings: pile up, build.

Exemplars: construct, destruct, instruct, obstruct; structure; destroy.

43. tain, ten(t)$_1$, tin

Pronunciations: /ten/, /tɛn/, /tɛnt/, /tɪn/; /tən/.

Pronunciation and spelling variations: base vowel alternates with stress change; spelling from Latin base varies and suffixation often results in spelling change, especially in base vowel.

Meaning: hold firm.

Exemplars: attain, contain, detain, entertain, (maintain), obtain, pertain, retain, sustain; tenant, tenement, (tenet), tenor, tenuous, tenure, (lieutenant); content (adjective); continue; tenacious, continent, impertinent.

44. tend, tens(e), tent$_2$

Pronunciations: /tɛnd/, /tɛns/, /tɛnt/, /tɛnš/.

Pronunciation and spelling variations: spelling of base-final consonant varies but always palatalizes to /š/ before -ion.

Meaning: stretch.

Exemplars: attend, contend, distend, extend, intend, pretend; intense, pretense, extensive; tension, extension; extent, intent, detention.

45. tract

Pronunciations: /trækt/, /trækš/.

Pronunciation variation: base-final consonant palatalizes to /š/ before -ion.

Meaning: draw, pull.

Exemplars: attract, contract, detract, distract, extract, protract, retract, subtract, tractable, tractor; traction.

46. vent, ven(e)

Pronunciations: /vɛnt/, /vɛnč/, /vɛnš/, /vin/; /vən/.

Pronunciation variations: base vowel alternates with stress change; base-final t palatalizes to /č/ before -ure and to /š/ before -ion.

Meaning: come.

Exemplars: advent, convent, event, invent, prevent; venture; convention, intervention; convene, intervene, convenient; covenant; circumvent.

47. vert, vers(e)

Pronunciations: /vʌrt/, /vʌrs/, /vʌrž/; /vərt/.

Pronunciation and spelling variations: base vowel alternates with stress change; base-final s is palatalized and voiced to /ž/ before -ion; Latin-based spelling varies.

Meaning: turn.

Exemplars: avert, convert, divert, invert, introvert, extrovert, pervert, revert, subvert, vertical; averse, adverse, converse, diverse, inverse, perverse, reverse, traverse, transverse, universe, versatile, (controversy); version; advertise; anniversary.

48. vid(e), vis(e), vice

Pronunciations: /vayd/, /vayz/, /vɪz/, /viz/, /vɪž/, /vɪs/, /vays/; /vəd/.

Pronunciation and spelling variations: base vowel alternates with stress change and with suffixation; vowel is long when base is word-final with silent e, and is usually short when base is word-initial; except when followed by a consonant (vista), base-final s is pronounced /z/ and is palatalized to /ž/ before -ion and -u-al; base-final c /s/ exists in only one word and differentiates the noun advice from the verb advise; Latin-based spelling varies.

Meaning: see.

Exemplars: provide; advise, improvise, revise, supervise, televise, visor; visible, visit, envisage; visa; vision, visual; vista; advice; evident, evidence.

49. viv(e), vit

Pronunciations: /vayv/, /vɪv/, /vayt/; /vəv/.

Pronunciation and spelling variations: base vowel alternates with stress change; vowel is long when base spelled with final v is word-final with silent e, and is short when base spelled with final v is word-initial; vowel is long in base spelled with final t; Latin-based spelling varies.

Meaning: live, life.

Exemplars: revive, survive; (vivid), convivial; vital, (vitamin); vivacious, vivacity.

50. voc, voke

Pronunciations: /vok/, /vak/; /vak/, /vas/.

Pronunciation and spelling variations: base-final consonant is spelled k only when in word-final position with silent e; base-final c is /k/ when followed by a (vocal), and is /s/ when followed by i (vociferous); vowel alternates with stress changes caused by affixes.

Meaning: call, voice.

Exemplars: vocal, vocation; vocable, vocative; convoke, evoke, invoke, provoke, revoke; advocate, equivocate; vociferous.

APPENDIX C

AFFIXES

I. Prefixes

1. a-

Pronunciation: /ə/.

Meanings: on, in, in the act of, toward, up, intensification. (Currently, meaning of this Anglo-Saxon prefix is often obscure, especially with bound bases.)

Bases: usually free monomorphemes; a limited number of bound monomorphemes.

Frequency: 8.

Exemplars: alive, around, about.

2. ad-

Pronunciations: /æd/, /æC/; /əd/, /əC/, /ə/ (d merges with j).

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant assimilates to b, c, f, g, l, n, p, q, r, s, and t, e.g., allege, acquit; final consonant is deleted before sc, sp, and st, e.g., ascribe, aspect, (astringent).

Meanings: to, toward, at, intensification.

Bases: primarily bound, productive monomorphemes; a few free, mostly monomorphemic words.

Post-occurring prefix, pro-: appropriate.

Affixation process: doubled consonant at prefix-base boundary if base has initial d or if there is complete assimilation.

Frequency: 10.

Exemplars: adverb, access; admit, affect, adjust.

3. ant(i)-

Pronunciations: /ǽntə/, /ǽnti/, /ænt/; /æntí/.

Pronunciation and spelling variations: final vowel of prefix is usually deleted before a vowel-initial base; with two-syllable base, stress can shift to final vowel of prefix.

Meanings: opposite, against.

Bases: usually free mono- or polymorphemes; a few bound bases.

Frequency: 2.

Exemplars: antifreeze, antiaircraft, Antarctic; antithesis.

4. be-

Pronunciations: /bi/; /bə/.

Pronunciation variation: prefix vowel may receive some stress, but is more often unstressed.

Meanings: all over, causation, intensification.

Bases: free or bound monomorphemes.

Frequency: 5.

Exemplars: beware; below.

5. bi-

Pronunciation: /bay/.

Meaning: two.

Bases: usually free mono- or polymorphemes.

Frequency: 1.

Exemplars: bicycle, bicentennial, biennial.

6. cent(i)-

Pronunciations: /sənt/; /sɛntə/.

Pronunciation and spelling variations: first prefix vowel can be stressed or unstressed; final vowel is usually deleted before a vowel-initial base.

Meaning: one hundred.

Bases: both free and bound mono- and polymorphemes which often include a suffix; also functions as a base itself and is prefixed or suffixed, e.g., percent, (century).

Frequency: 5.

Exemplars: centennial; centimeter.

7. co(n)-

Pronunciations: /kan/, /kaŋ/, /kaC/; /kʌm/; /ko/; /kən/, /kəC/, (/kə/).

Pronunciation and spelling variations: prefix vowel can be stressed and have alternations, or it can be unstressed; final consonant assimilates completely to l and r, and assimilates to m before bilabials; the final consonant is deleted before h, gn, and usually before vowels, e.g., cohost; (recognize), cooperate; it is often pronounced /ŋ/ before velar consonants, e.g., (conquer).

Meanings: with, along, together, intensification.

Bases: primarily bound, productive monomorphemes; some free mono- and bimorphemes.

Post-occurring prefixes, in_1-, pre-, pro-, re-: coincide, (comprehend), compromise, (correspond).

Affixation processes: doubled consonant at prefix-base boundary if base has initial n or if there is complete assimilation.

Frequency: 9.

Exemplars: constant, congress, college; comfort; construct, correct.

8. de-

Pronunciations: /dɪ/, /dɛ/; /də/.

Pronunciation variations: prefix vowel can be stressed and have alternations, or it can be unstressed; when prefix vowel is unstressed and followed by c /s/, f, s, or v, de- is homophonous with dis-, e.g., deserve, disease.

Meanings: down, off, away, reversal, completely.

Bases: primarily bound, productive monomorphemes; a few free mono- and bimorphemes.

Frequency: 9.

Exemplars: defect (noun), delegate; decide, defrost.

9. dec(a, i)-

Pronunciations: /dɛkə/, /dɛsə/; /dəs/.

Pronunciation and spelling variations: when followed by a, the second consonant is /k/; when followed by i or e, the second consonant is /s/; final vowel is usually deleted before a vowel-initial base.

Meanings: ten, tenth, or one-tenth.

Bases: primarily bound mono- and poly-morphemes which often include a suffix; also functions as a base itself and is suffixed; e.g., decade, December, decimal.

Frequency: 1.

Exemplars: decagon, decameter, decimeter; decennial.

10. dis-

Pronunciations: /dɪs/, /dɪf/, /dɪ/; (/day/); /dəs/, /də/, /dəz/.

Pronunciation and spelling variations: prefix vowel can be stressed and have alternations, or it can be unstressed; final consonant assimilates completely to f, and is deleted before sC, v, and r, usually before l, and sometimes before g, e.g., distance, divert; if prefix is unstressed, final consonant is usually voiced when intervocallic, e.g., (disaster).

Meanings: not, apart, reversal, intensification.

Bases: primarily bound, productive mono- and bimorphemes which often include a suffix; some free polymorphemes which are often prefixed and/or suffixed.

Post-occurring prefixes, ad-, con-, e-, en-, inɪ-, ob-, pro-, re-, syn-: disadvantage, discontent, disestablish, disentangle, disinfect, disobey, disproportion, disrespect, dissymmetric.

Affixation process: doubled consonant at prefix-base boundary if base has initial s or f.

Frequency: 8.

Exemplars: discount, different, distant, diligent; (the noun, digest); dismiss, direct, disease.

11. du-

Pronunciation: /du/.

Meaning: two.

Bases: usually bound mono- and bimorphemes; also functions as a base and is suffixed, e.g., dual, duel, duet.

Frequency: 1.

Exemplars: duplex, duplicate.

12. e-

Pronunciations: /ɛ/; /ə/.

Pronunciation variation: prefix vowel can be stressed or unstressed.

Meanings: out (of), from, opposing, intensification (actually an allomorph of ex-, but the relationship is not practical for instructional purposes).

Bases: usually bound, mono- and bimorphemes which often include a suffix; some free, mono- and bimorphemic words.

Frequency: 6.

Exemplars: educate; elect, elaborate.

13. en

Pronunciations: /ɛn/, (/ɛC/); /ən/, /əC/.

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed: final consonant assimilates partially to m before bilabials and, before Greek bases having initial l, the n assimilates completely; when unstressed, en- is homophonous with in_1- or in_2-, e.g., entitle, intend.

Meanings: forms verbs from nouns and adjectives indicating causation, or with the meaning "to put into or on," or "to go into or on;" forms nouns and adjectives indicating "in, into, or within."

Bases: both free and bound mono- and polymorphemes; most free bases with en- become verbs.

Affixation process: doubled consonant at prefix-base boundary if base has initial n or if there is complete assimilation to l.

Frequency: 6.

Exemplars: ensign, (empire); enable, embed, (elliptic).

14. equi-

Pronunciations: /ɪkwə/; /əkwɪ/.

Pronunciation variation: either first or second prefix vowel can be stressed.

Meaning: equality.

Bases: free and bound mono- and polymorphemes, often with suffixation; also functions as a base itself and is suffixed, e.g., equal, equate.

Frequency: 1.

Exemplars: equipoise; equivocate.

15. ex-

Pronunciations: /ɛks/, /ɛf/, (/ɛgz/), (/ɛs/); /əks/, /əf/, (/əgz/), (/əs/).

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant assimilates completely to f, and may change to s before c /k/, e.g., escape; when followed by a base with initial sC, the s is deleted from the base, e.g., extant; if prefix is unstressed, final consonants are usually voiced when intervocallic, e.g., (examine).

Meanings: out (of), from, opposing, completely, former.

Bases: bound, productive mono- and bimorphemes that usually become verbs (often also functioning as nouns with same meaning); a few free bases are preceded by hyphens when the meaning is "former," e.g., ex-president.

Affixation processes: with complete assimilation, doubled consonant at prefix-base boundary; hyphen at prefix-base boundary.

Frequency: 9.

Exemplars: expletive, effort, (exit), (the noun, escort); expend, effect, (exact).

16. extra-

Pronunciations: /ɛkstrə/; (/ɛkstrǽ/).

Pronunciation variation: either first or second prefix vowel can be stressed.

Meanings: outside, beyond.

Bases: both free mono- and polymorphemes (productive with free bases) and bound monomorphemes which are usually suffixed; also functions as a free base itself, i.e., extra.

Frequency: 1.

Exemplars: extracurricular, extralegal; (extravagant).

17. hemi-

Pronunciation: /hɛmə/.

Meaning: half.

Bases: usually free mono- and bimorphemic words which are suffixed; a few bound polymorphemes in scientific fields.

Frequency: 1.

Exemplars: hemisphere, hemicycle.

18. hexa-

Pronunciations: /hɛksə/; /hɛksǽ/.

Pronunciation variation: either first or second prefix vowel can be stressed.

Meaning: six.

Bases: free and bound mono- and bimorphemes, sometimes with suffixation.

Frequency: 1.

Exemplars: hexagon; hexameter.

19. in_1-

Pronunciations: /ɪn/, /ɪC/; /ən/, /əC/.

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant usually assimilates to l and r, and assimilates to m before bilabials.

Meanings: in, into, within, inward, on, toward, causative.

Bases: primarily bound, productive mono- and bimorphemes.

Affixation process: doubled consonant at prefix-base boundary if base has initial n or if there is complete assimilation to l, r, or m.

Frequency: 9.

Exemplars: indicate, import (noun), (illustrate), (irrigate); infect, imply, (illuminate), (irradicate).

20. in_2-

Pronunciation: /ɪn/, (/ɪC/); /ən/, /əC/.

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant assimilates to l and r, and assimilates to m before bilabials.

Meanings: not, without.

Bases: primarily free polymorphemes which are suffixed and/or prefixed; a very few nonproductive bound mono- and bimorphemes which can usually be suffixed.

Post-occurring prefixes, con-, de-, dis-, pro-, re-, or sub-: inconvenient, independent, indirect, improper, (irresponsible), insufficient.

Affixation process: doubled consonant at prefix-base boundary if base has initial n or if there is complete assimilation to l, r, or m.

Frequency: 5.

Exemplars: invalid (noun), (impudent); invisible, illegible, irregular.

21. inter-, enter-

Pronunciations: /ɪntər/, /ɪntəl/, (/ɪntr/); (/əntʌr/), /əntɛl/; /ɛntər/.

Pronunciation and spelling variations: either first or second prefix vowel can be stressed; final consonant assimilates to l; second syllable of prefix is completely reduced in the word interest; in a few words, the initial vowel i changes to e, e.g., entertain.

Meanings: between, among.

Bases: usually bound mono- and polymorphemes which are suffixed.

Affixation process: doubled consonant at prefix-base boundary if base has initial r or if there is assimilation to l.

Frequency: 4.

Exemplars: interview, intellect, (interest); (interpret), intelligent.

22. intr(a, o)-

Pronunciation: /ɪntrə/.

Spelling variation: final vowel changes.

Meanings: in, within, inside of.

Bases: prefix with final a is usually affixed to free polymorphemes; prefix with final o is usually affixed to bound mono- and polymorphemes.

Frequency: 1.

Exemplars: intrastate, introvert.

23. mal-

Pronunciation: /mæl/.

Meanings: bad, badly, wrongly.

Bases: both free and bound mono- and polymorphemes which are often affixed; also functions as a base and is suffixed, e.g., malice.

Frequency: 1.

Exemplars: malcontent, malformed.

24. mill(i)-

Pronunciations: /məl/; /mɪlə/.

Pronunciation and spelling variations: first prefix vowel can be stressed or unstressed; final vowel is usually deleted before a vowel-initial base.

Meaning: one thousand.

Bases: bound mono- and bimorphemes; often functions as a base itself and is suffixed, e.g., million.

Frequency: 1.

Exemplars: millennium; millimeter.

25. mis-

Pronunciations: /mɪs/; /məs/.

Pronunciation variation: prefix vowel can be stressed or unstressed.

Meanings: error, wrongness, badness.

Bases: usually free mono- or polymorphemes which are often prefixed and/or suffixed.

Post-occurring prefixes, ad-, be-, con-, de-, dis-, in$_1$-, inter-, pro-, re-: misadventure, misbehave, misconduct, (misdemeanor), misdirect, misinformed, (misinterpret), mispronounce, misrepresent.

Affixation process: doubled consonant at prefix-base boundary if base has initial s.

Frequency: 3.

Exemplars: misuse, (mischief); misspell, mistake.

26. mono-

Pronunciations: /manə/; /mɑnə/.

Pronunciation variation: stress may be on either first or second prefix vowel.

Meanings: one, single, alone.

Bases: bound and free mono- and polymorphemes; most bound bases are Greek in origin.

Frequency: 2.

Exemplars: monologue, monograph, monorail; (monopoly), (monogamy).

27. multi-

Pronunciation: /mʌltə/.

Meanings: many, much.

Bases: free and bound mono- and polymorphemes; also functions as a base itself and is suffixed; e.g., multitude.

Frequency: 2.

Exemplars: multicolored, multistory, multiply.

28. non-

Pronunciations: /nan/.

Meaning: not

Bases: in active use primarily with free polymorphemes which are often prefixed and/or suffixed; if free base begins with a capital letter, a hyphen follows the prefix, e.g., non-French.

Post-occurring prefixes, ad-, con-, de-, dis-, ex-, in$_1$-, inter-, ob-, pro-, re-, sub-, trans-: nonattendance, nonconformist, nondescript, nondirectional, nonexpendable, noninfectious, nonintervention, nonobjective, nonproductive, nonreactive, nonsupport, nontransferable.

Affixation processes: doubled consonant at prefix-base boundary if base has initial n; hyphen at prefix-base boundary.

Frequency: 6.

Exemplars: noncommittal, nonprofit, nonsense, nonstop.

29. ob-

Pronunciations: /əb/, /əC/, /ɔC/; /əb/, /əC/, /o/.

Pronunciation and spelling variations: prefix vowel can be stressed and have alternations, or it can be unstressed; final consonant usually assimilates to c /k/, f, and p, and is omitted before m, e.g., omit.

Meanings: to, toward, facing, opposite, intensification.

Bases: primarily bound, productive mono- and bimorphemes which often include a suffix; only a few free monomorphemes.

Affixation process: with complete assimilation, doubled consonant at prefix-base boundary.

Frequency: 7.

Exemplars: oblong, object (noun), opportune, office; obtain, occur.

30. oct(o, a)-

Pronunciations: /ɑktə/; /ɑktæ/.

Pronunciation and spelling variations: either first or second prefix vowel can be stressed; final vowel spelling changes.

Meanings: eight, eighty.

Bases: primarily bound mono- and polymorphemes which often include a suffix; also functions as a base itself and is suffixed, e.g., October, octet, (octave).

Frequency: 1.

Exemplars: octogenarian, octagon, (octopus); octameter.

31. para-

Pronunciations: /pærə/; /pəræ/.

Pronunciation variation: either first or second prefix vowel can be stressed.

Meanings: alongside, near, similar to, subsidiary to.

Bases: both bound and free mono- and polymorphemes which are often suffixed; in active use with free morphemes.

Frequency: 3.

Exemplars: paragraph, paralegal; parameter.

32. penta-

Pronunciations: /pɛntə/; /pəntæ/.

Pronunciation variation: either first or second prefix vowel can be stressed.

Meaning: five.

Bases: primarily bound mono- and bimorphemes, often with suffixation; occasionally functions as a base itself and is suffixed, e.g., pentacle.

Frequency: 1.

Exemplars: pentagon, pentagraph; pentameter.

33. per-

Pronunciations: /pʌr/; /pər/.

Pronunciation variation: prefix vowel can be stressed or unstressed.

Meanings: through, throughout, away, by, intensification.

Bases: usually bound, rather productive mono- and bimorphemes which are often suffixed; a limited set of free morphemes.

Frequency: 4.

Exemplars: perfect (adjective), permit (noun); perplex, pertain, perennial.

34. poly-

Pronunciations: /pɑlɪ/; /pəlɪ/.

Pronunciation variation: either first or second vowel can be stressed.

Meanings: more than one, many, much.

Bases: primarily bound mono- and polymorphemes usually with suffixation.

Frequency: 1.

Exemplars: (polyester), polygon, polygraph; (polygamy), polyphony.

35. post-

Pronunciations: /post/, /pos/.

Pronunciation variation: when first letter of base is a consonant, simplification of the cluster may result in loss of final t in post- e.g., postscript /póskrɪpt/; prefix vowel can be stressed or unstressed.

Meanings: later, behind, after.

Bases: usually free mono- and polymorphemes with suffixation; also functions as a base and is suffixed, e.g., posterior, posterity.

Frequency: 1.

Exemplars: postscript, postdate, postgraduate.

36. pre-

Pronunciations: /pri/, /prɛ/; /prə/.

Pronunciation variations: prefix vowel can be stressed and have alternations, or it can be unstressed.

Meanings: before, in front.

Bases: historically, bound productive mono- or polymorphemes which are often suffixed; currently, pre- is also in fairly active use with free mono- and polymorphemes which might be prefixed and/or suffixed.

Frequency: 6.

Exemplars: prefix, prepaid, predicate; precise, pretend.

37. pro-

Pronunciations: /pro/, /prə/; /prə/.

Pronunciation variations: prefix vowel can be stressed and have alternations, or it can be unstressed, expecially with a form class change.

Meanings: forth, in behalf of, onward, for.

Bases: usually bound, productive monomorphemes; free morphemes are rare.

Frequency: 7.

Exemplars: pronoun, produce (noun), profit; produce (verb).

38. quadr(i, u)-

Pronunciations: /kwadr/, /kwadrə/; /kwədr/, /kwədru/.

Pronunciation and spelling variations: first prefix vowel can be stressed or unstressed; final vowel is usually deleted before a vowel-initial base; final vowel changes.

Meaning: four.

Bases: usually bound mono- and polymorphemes which have been suffixed; also functions as a base itself and is suffixed, e.g., quadrant, quadratic, (quadrille).

Frequency: 1.

Exemplars: quadrangle, quadricycle, (quadruped); quadrennial, quadruple.

39. quin(tu)-

Pronunciations: /kwɪn/, /kwɪntə/; /kwəntu/.

Pronunciation and spelling variations: stress alternates between first and second vowel; t and second vowel are sometimes deleted.

Meaning: five.

Bases: bound mono- and polymorphemes which often include a suffix; also functions as a base and is suffixed, e.g., quintet.

Frequency: 1.

Exemplars: quincentennial, quintuplet; quintuplicate.

40. re-

Pronunciations: /rɪ/, /rɛ/; /rə/.

Pronunciation variations: prefix vowel usually receives some stress before free bases; before bound bases, it can be stressed or unstressed, especially with a form class change; stressed vowel alternates.

Meanings: again, back (in time or place).

Bases: bound, productive mono- and polymorphemes; also many free, mono- and polymorphemes having prefixes and/or suffixes.

Post-occurring prefixes, ad-, con-, de-, dis-, e-, en-, in_1-, pre-, pro-, re-: readmit, recondition, redefine, redirect, re-elect, re-enact, reinform, represent, reproduce, (re-release).

Affixation process: hyphen at prefix-base boundary if base is free and has initial e or initial prefix re-, e.g., re-elect, re-review.

Frequency: 10.

Exemplars: redo, recess (noun), relegate; reverse, recess (verb).

41. semi-

Pronunciation: /sɛmi/.

Meanings: half, almost, twice in a given period.

Bases: free polymorphemes.

Frequency: 1.

Exemplars: semiannual, semicircle, semifinal.

42. sept(u)-

Pronunciations: /sɛpt/; /sɛptʌ/.

Spelling variations: final prefix vowel may be deleted before a vowel-initial base.

Meaning: seven.

Bases: usually bound mono- and polymorphemes; also functions as a base itself and is suffixed, e.g., (September), septet.

Frequency: 1.

Exemplars: septennial; septuplet.

43. sex(tu)-

Pronunciations: /sɛks/; /sɛkstʌ/.

Pronunciation and spelling variations: when prefix has two syllables, second syllable is stressed and its spelling changes.

Meaning: six.

Bases: usually bound polymorphemes; also functions as a base and is suffixed, e.g., sextet.

Frequency: 1

Exemplars: sexennial; sextuple.

44. sub-

Pronunciations: /sʌb/, /sʌC/, /sʌ/; /səb/, /səC/, /sə/.

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant assimilates completely to c, f, g, m, p, and r; sometimes final consonant becomes s before c, p, and t, and is deleted before s, e.g., (susceptible), suspend, sustain, suspect.

Meanings: under, beneath, secretly, less than, near.

Bases: bound, productive mono- and polymorphemes and some free polymorphemes.

Affixation process: doubled consonant at prefix-base boundary if base has initial b or if there is complete assimilation.

Frequency: 7.

Exemplars: subway, suffix, (summon), suspect (noun); submit, succeed, suggest, supply, suspect (verb).

45. super-

Pronunciation: /supər/.

Meanings: over, above.

Bases: some bound, productive mono- and bimorphemes which may include suffixation; in active use with free mono- and polymorphemes; also functions as a free base and as a suffixed bound base; e.g., super, superior.

Post-occurring prefix, in_1-: superintend.

Frequency: 3.

Exemplars: supervise, supermarket.

46. syn-

Pronunciations: /sɪn/, /sɪC/; (/sən/).

Pronunciation and spelling variations: prefix vowel can be stressed or unstressed; final consonant assimilates to l and m, and also becomes m before p, b, and ph /f/.

Meanings: together, with.

Bases: bound mono- and bimorphemes.

Affixation process: with complete assimilation to l or m, doubled consonant at prefix-base boundary.

Frequency: 3.

Exemplars: syndicate, syllogism, (syllable), symmetry, (sympathy), symphony; (synopsis), (synthetic).

47. tele-

Pronunciations: /tɛlə/.

Pronunciation variation: either first or second prefix vowel can be stressed.

Meanings: far, at a distance.

Bases: primarily free monomorphemes.

Frequency: 3.

Exemplars: telegraph, telephone, television.

48. trans-

Pronunciation: /træns/.

Meanings: across, over, beyond, through.

Bases: bound, productive mono- and polymorphemes; some free mono- and polymorphemes.

Frequency: 4.

Exemplars: transfer, transform, translate, transcontinental.

49. tri-

Pronunciations: /tray/; /trɪ/.

Pronunciation variations: prefix vowel is usually stressed but alternates; vowel is usually long when attached to a free base.

Meaning: three.

Bases: both free and bound mono- and polymorphemes which often include suffixation; also functions as a base itself and may be suffixed: e.g., trinity, trio.

Frequency: 1.

Exemplars: tricycle, triennial; trilogy, triple.

50. un-

Pronunciations: /ʌn/; /ən/.

Pronunciation variations: prefix vowel usually receives some stress before an unstressed syllable, and is unstressed before a stressed syllable.

Meanings: not, reversal of an action.

Bases: in very active use with free mono- and polymorphemes.

Post-occurring prefixes: un- can precede most prefixes.

Affixation process: doubled consonant at prefix-base boundary if base has initial n.

Frequency: 8.

Exemplars: undependable, uneventful; unable, unusual.

51. uni-

Pronunciation: /yunə/.

Meanings: one, single.

Bases: both bound and free mono- and polymorphemes; often functions as a base itself and is suffixed, e.g., unify, union, unity.

Frequency: 3.

Exemplars: uniform, universe.

II. Suffixes

1. -able [cf. -ible]

Pronunciation: /əbəl/.

Meanings: susceptible, capable of, worthy of.

Function: adjectival.

Bases: usually free verbal mono- and polymorphemes; a limited number of bound mono- and polymorphemes.

Pre-occurring suffixes, -age, -er, -ery, -ice, -ine, -ion, -ity, -le, -on, -or, -ory: manageable, considerable, miserable, noticeable, imaginable, fashionable, charitable, recyclable, reasonable, favorable, memorable.

Post-occurring suffixes, -ary, -ity, -ly: vocabulary, capability, comfortably.

Affixation processes: suffix-final le → il before -ity, e,g., dependability, and le → ul before -ary, e.g., vocabulary; suffix-final le → ∅ before -ly, e.g., probably; in -ery and -ity, final y → ∅ before -able, e.g., miserable, charitable; final le /əl/ → /l/ before -able, e.g., recyclable.

Frequency: 6.

Exemplars: disposable, portable, profitable, valuable.

2. -acle

Pronunciation: /əkəl/.

Meaning: an object.

Function: nominal.

Bases: bound productive monomorphemes.

Post-occurring suffixes, -ar, -ous: spectacular, miraculous.

Affixation processes: suffix-final le → ul before -ar and -ous.

Frequency: 1.

Exemplars: obstacle, pinnacle, receptacle, spectacle.

3. -age

Pronunciations: /əǰ/; (/aǰ/), (/až/).

Pronunciation variations: although pronunciation of this formerly French suffix has been Anglicized, a few words retain French pronunciation with stress.

Meanings: relation to, connection with, condition or position.

Function: nominal.

Bases: both bound and free monomorphemes; a few polymorphemes, usually unprefixed.

Pre-occurring suffixes, -an, y: orphanage, marriage.

Post-occurring suffixes, -able, -er, -ine, -ment, -ous: manageable, manager, imagine, management.

Pre-occurring epenthetic element, -i-: verbiage.

Affixation processes: in the words acreage and mileage base-final silent e is retained; base-final consonants (except for m and n) double following a short vowel, e.g., baggage; in messenger and in passenger, -age /əǰ/ → -eng /ənǰ/.

Frequency: 7.

Exemplars: courage, drainage; (garage), (collage).

4. -al

Pronunciation: /əl/.

Meanings: belonging to, appropriate to, having characteristics of.

Function: adjectival (sometimes functions nominally).

Bases: both free and productive bound mono- and polymorphemes.

Pre-occurring suffixes, -ance, -ent, -ic, -in, -ion, -it, -ive, -ment, -ure, -y: financial, accidental, electrical, original, national, orbital, festival, departmental, natural, colonial.

Post-occurring suffixes, -ic, -ion, -ist, -ity, -ize, -ly, -ry: metallic, medallion, capitalist, locality, realize, normally, rivalry.

Pre-occurring epenthetic elements, -i-, -ic-, -u-: centennial, vertical, annual.

Affixation processes: suffixes -ic and -ity cause stress on the preceding -al (/æl/); double consonant occurs at base-suffix boundary, e.g., normally.

Frequency: 10.

Exemplars: legal, typical, partial.

5. -an

Pronunciation: /ən/.

Meanings: belonging to, concerned with, resembling.

Function: adjectival or nominal.

Bases: both bound and free mono- and polymorphemes; many words that include this suffix are proper names or proper nouns, e.g., Susan, Mexican.

Pre-occurring suffixes: -ary, -ia, -ic, -il, -ory, -y: librarian, Indian, magician, civilian, historian, comedian.

Post-occurring suffixes, -ic, -ist, -ity, -ize: Germanic, humanist, humanity, organize.

Pre-occurring epenthetic elements, -i-, -it-: guardian, musician, puritan.

Affixation processes: base-final V → ∅ before this suffix, e.g., Russian; when -an is preceded by -i-, primary stress is on syllable preceding -i-, e.g., custódian; addition of suffix -ic or -ity causes stress on -an (/æn/), e.g., orgánic, humánity.

Frequency: 8.

Exemplars: ocean, veteran, Roman.

6. -ance [cf. -ant]

Pronunciations: /əns/; /æns/.

Pronunciation variation: although pronunciation of this formerly French suffix has been Anglicized, a few words alternate to retain the stress of the French suffix, e.g., finánce.

Meanings: indicates an action, quality, or condition.

Function: nominal form of -ant.

Bases: primarily free, prefixed mono- and bimorphemes with Latin bases.

Pre-occurring suffixes, -er, -it, -le: entrance, inheritance, resemblance.

Post-occurring epenthetic element and suffix, -i-al: financial.

Pre-occurring epenthetic element, -i-: allegiance.

Affixation processes: le → ul, e.g., ambulance; stress change, e.g., ignore → ignorance; le /əl/ → /l/ before this suffix, e.g., resemblance; final ce → t before -ic, e.g., romantic; er → r, e.g., remembrance.

Frequency: 5.

Examplars: attendance, fragrance, nuisance.

7. -ant [cf. -ance]

Pronunciation: /ənt/.

Meanings: indicates performing, promoting, or causing an action or condition; also agentive.

Function: adjectival form of -ance, e.g., elegant; also nominal, e.g., servant.

Bases: primarily bound mono- and bimorphemes; some free, prefixed Latin bimorphemes.

Pre-occurring suffix, -it: inhabitant.

Post-occurring suffixes, -ic, -ly: gigantic, pleasantly.

Pre-occurring epenthetic element, -i-: valiant.

Affixation processes: final y → ic, e.g., applicant; epenthetic letter (g) added, e.g., gigantic; vowel change, e.g., please /pliz/ → pleasant /plézənt/; stress change, e.g., ignóre → ignorant.

Frequency: 6.

Examplars: defendant, pageant, radiant, vacant.

8. -ar

Pronunciation: /ər/.

Meaning: pertaining to, engaged in or connected with, of the nature of; agentive.

Function: adjective and nominal.

Bases: both bound and free mono- and bimorphemes.

Pre-occurring suffixes, -acle, -le, y: spectacular, circular, familiar.

Post-occurring suffixes, -ity, -ly: popularity, regularly.

Pre-occurring epenthetic element, -i-: peculiar.

Affixation processes: final le → ul, e.g., singular; sc /s/ preceding le becomes /sk/ when le → ul, e.g., muscular, addition of suffix -ity puts stress on -ar (/ɛr/), e.g., familíar → familiárity; le /əl/ →/l/, e.g., burglar; stress change, e.g., fámily → famílíar; vowel change, e.g., people /pípəl/ → popular /pápyələr/.

Frequency: 6.

Exemplars: grammar, liar, particular, sugar.

9. -ary

Pronunciations: /ərɪ/, /rɪ/, /ɛ́rɪ/.

Pronunciation variations: first suffix vowel can be stressed, unstressed, or deleted phonologically.

Meanings: pertaining to, engaged in, or connected with.

Function: nominal.

Bases: both bound and free mono- and bimorphemes.

Pre-occurring suffixes, -able, -et, -ine, -ion, -ment, -ute: vocabulary, secretary, imaginary, missionary, documentary, tributary.

Post-occurring suffixes, -an, -ly: librarian, temporarily.

Pre-occurring epenthetic elements, -i-, -it-, -u-: auxiliary, solitary, January.

Affixation processes: final le → ul, e.g., vocabulary; vowel change, e.g., secret /síkrət/ → secretary /sɛ́krətɛrɪ/; stress change with possible deletion of first suffix vowel, e.g., element /ɛ́ləmənt/ → elementary /ɛ̀ləmɛ́ntrɪ/.

Frequency: 6.

Exemplars: boundary, canary, salary.

10. -ate

a. Pronunciation: /et/.

Meaning: make.

Function: verbal.

Bases: primarily free or productive bound polymorphemes.

Pre-occurring suffixes, -er, -ic, -ine, -le, -or: concentrate, intoxicate, vaccinate, circulate, evaporate.

Post-occurring suffixes, -ion, -ive, -or, -ure: dictation, creative, generator, legislature.

Pre-occurring epenthetic elements, -i-, -ic-, -it-, -u-, -ul: abbreviate, communicate, imitate, gráduàte, congratulate.

Affixation processes: final er → r, e.g., infiltrate; final le → ul, e.g., populate; stress and vowel change, e.g., vaccine /vǽksɪn/ → vaccinate /vǽksənèt/, vapor /vépər/ → evaporate /əvǽpərèt/.

Frequency: 9.

Exemplars: advocate, consolidate, dedicate.

b. Pronunciation: /ət/.

Meanings: (adj.) possessing or being; (noun) office or function.

Functions: usually adjectival; occasionally nominal.

Pre-occurring suffixes, -er, -ify, -ion, -or, -une: considerate, certificate, affectionate, elaborate, fortunate.

Post-occurring suffixes, -ive, -ly, -or, -ure, -y: cooperative, separately, senator, literature, delicacy.

Pre-occurring epenthetic elements, -i-, -u-: inítiate, gráduate.

Affixation processes: final or /ər/ → /r/, e.g., elaborate /əlǽbrət/; suffix vowel deleted, e.g., temperature /témpərčər/; final te → c before -y, e.g., delicacy; final y → ic before -ate, e.g., certify → certificate; vowel change, e.g., grade /gred/ → graduate /grǽjuət/; stress change, e.g., labor /lébər/ → elaborate /əlǽbrət/.

Frequency: 9.

Exemplars: accurate, climate, considerate, delicate.

11. -(e)n

Pronunciation: /ən/, /n/.

Pronunciation and spelling variations: suffix vowel is sometimes deleted in verbal functions, e.g., born, seen, thrown.

Meanings: cause to be or have, made of.

Functions: verbal, adjectival, and nominal.

Bases: primarily free monomorphemes; some unproductive bound monomorphemes.

Pre-occurring suffix, -th: lengthen.

Post-occurring suffixes, -er, -ing, -ly, -ous, -ship, -th, -ty: gardener evening, suddenly, ravenous, citizenship, eleventh, seventy.

Affixation Processes: epenthetic letter r added, e.g., children; suffix vowel deleted -en /ən/ → /n/, e.g., listener /lísnər/; consonant cluster simplication, e.g., fast /fæst/ → fasten /fǽsən/.

Frequency: 9.

Exemplars: kitten, wooden, worn.

12. -ence [cf. -ent]

Pronunciation: /əns/.

Meaning: indicates an act or condition.

Function: nominal form of -ent.

Bases: bound and free mono- and bimorphemes which are usually prefixed.

Post-occurring suffix, -ist: scientist.

Post-occurring epenthetic element and suffix, -i-al: essential, influential.

Pre-occurring epenthetic element, -i-: audience, patience.

Affixation processes: final ce → t before suffixation, e.g., essential, scientist; stress change, e.g., reside /rɪzáyd/ → residence /rɛ́zədəns/; morpheme boundaries must be known to pronounce word, e.g., science--where ie might be misread as a digraph.

Frequency: 5.

Exemplars: audience, difference, dependence, evidence.

13. -ent [cf. -ence]

Pronunciation: /ənt/.

Meaning: indicates performing or causing an act or condition.

Function: nominal; also, adjectival form of -ence.

Bases: primarily bound mono- and bimorphemes; some free, prefixed Latin bimorphemes.

Pre-occurring suffix, -ify: magnificent.

Post-occurring suffixes, -al, -ly, -y: continental, silently, agency.

Pre-occurring epenthetic elements, -i-, -u-: convenient, constituent.

Post-occurring epenthetic element and suffixes, -at-ion, -at-ive: representation, representative.

Affixation processes: final t of suffix → c before -y, e.g., currency; final y → ic, e.g., magnify → magnificent; c followed by -ent is spirantized to /s/; suffix -ent receives primary stress preceding -al, e.g., còntinéntal; final er /ər/ → /r/, e.g., different /dífrənt/; stress and vowel change, e.g., contáin → cóntinent.

Frequency: 8.

Exemplars: absent, accident, student, intelligent.

14. -er

Pronunciation: /ər/.

Meanings: agentive, indication of frequent or recurrent action or sound.

Function: nominal and verbal.

Bases: both bound and free mono- and bimorphemes.

Pre-occurring suffixes, -el, -en, -er, -ify, -ine, -ion, -ish, -ize, -le, -or, -ure: jeweler, opener, murderer, modifier, mariner, commissioner, publisher, fertilizer, settler, laborer, manufacturer.

Post-occurring suffixes, -able, -al, -ance, -ate, -er, -ess, -ful, -hood, -ine, -ist-ic, -ly, -ness, -ous, -ship, -ty, -ward, -y: miserable, neutral, remembrance, considerate, wanderer, tigress, powerful, motherhood, Catherine, characteristic, formerly, wilderness, dangerous, membership, property, afterward, angry.

Pre-occurring epenthetic element, -i-: barrier.

Post-occurring epenthetic element and suffix, -at-ion: registration.

Affixation processes: before post-occurring suffix, final -er /ər/ → /r/, e.g., recovery /rikʌ́vri/; -er may change graphically to r, e.g., angry; base-final le /əl/ → /l/, e.g., bugle /byúgəl/ → bugler /byúglər/.

Frequency: 10.

Exemplars: center, stopper, timer.

15. -(e)ry

Pronunciations: /ərɪ/, /erɪ/, /rɪ/.

Pronunciation and spelling variations: when suffix has initial vowel, pronunciation of that vowel alternates or it may be deleted; -ry usually occurs after t, d, or l.

Meanings: an activity, a collection, a study, behavior, or condition.

Function: nominal.

Bases: both bound and free mono- and bimorphemes.

Pre-occurring suffixes, -al, -el, -et, -ine, -ion, -ist: rivalry, jewelry, poetry, machinery, stationery, chemistry.

Post-occurring suffix, -ous: mysterious.

Frequency: 4.

Exemplars: diary, foundry, gentry, refinery, pottery, cemetery.

16. -ess

Pronunciation: /əs/.

Meaning: a female.

Function: nominal.

Bases: usually free mono- and bimorphemes; a few bound monomorphemes.

Pre-occurring suffixes: -er, -or: waitress, actress.

Affixation process: pre-occurring suffix Vr → r, e.g., actor + ess → actress.

Frequency: 2.

Exemplars: goddess, mattress, mistress, princess.

17. -et

Pronunciations: /ət/; /e/.

Pronunciation variations: words borrowed from French have stress on the suffix vowel e, but delete pronunciation of the consonant t.

Meaning: diminutive.

Function: nominal.

Bases: usually bound and unproductive mono- and bimorphemes.

Post-occurring suffixes, -ary, -ic, -ly, -ry, -y: secretary, magnetic, secretly, poetry, rickety.

Affixation process: in some words, suffix-final t → c, e.g., prophet + y → prophecy.

Frequency: 8.

Exemplars: helmet, market; bouquet, ballet.

18. -ful

Pronunciation: /fəl/.

Meaning: full (of), with.

Function: adjectival.

Bases: predominantly free monomorphemes, a few free bimorphemes; bound monomorphemes are rare. (When suffix has a measurable quantitative meaning, it has secondary stress and is treated as one component of a compound, e.g., cupful, handful.)

Pre-occurring suffixes, -th, -y: truthful, pitiful.

Post-occurring suffixes, -ly, -ness: playfully, usefulness.

Affixation process: with post-occurring -ly, doubled consonant at base-suffix boundary, e.g., carefully; final silent e (preceded by a vowel) → Ø, e.g., awful.

Frequency: 8.

Exemplars: rightful, bountiful, (grateful).

19. -hood

Pronunciation: /hud/.

Meaning: state, condition, or quality of being.

Function: nominal.

Bases: always free mono- or bimorphemes.

Pre-occurring suffixes, -er, -ly, -or: brotherhood, likelihood, neighborhood.

Frequency: 1.

Exemplars: falsehood, motherhood.

20. -ia

Pronunciations: /iə/, /yə/, palatization + /ə/.

Pronunciation variations: following n or l, first suffix vowel is /y/, e.g., California, Julia; following s, ss, t, c, g, or ch, suffix -ia palatalizes the consonant to /ž/, /š/, /j/, or /č/ and first suffix vowel merges with palatalized consonant, e.g., Asia, Russia, Nova Scotia, Marcia, Georgia, Appalachia; following other consonants, first suffix vowel is /i/.

Meanings: used to form names of people, geographic areas, plants, diseases, and collective nouns.

Function: nominal.

Bases: usually bound, unproductive mono- and polymorphemes; many words that include this suffix are proper nouns (see above).

Pre-occurring suffixes, -en, -in, -ive, -or: gardenia, Virginia, Olivia, Victoria.

Post-occurring suffixes, -an: Indian.

Affixation processes: suffix-final vowel → ∅ before vowel-initial suffix, e.g., India + an → Indian; vowel change with stress change to syllable preceding suffix, e.g., garden /gárdən/ → gardenia /gardínyə/.

Frequency: 5.

Exemplars: Sylvia, (malaria), Australia, (petunia), Patricia, (militia).

21. -ible [cf. -able]

Pronunciation: /əbəl/.

Meanings: susceptible, capable of, worthy of.

Function: adjectival.

Bases: primarily bound, productive mono- and bimorphemes; a few free bases.

Post-occurring suffixes, -ity, -ly: possibility, terribly.

Affixation processes: suffix-final le → il when followed by -ity, e.g., possibility; suffix-final le → ∅ when followed by -ly, e.g., terribly; base-final d(e) → s, divide → divisible, (respond → responsible).

Frequency: 2.

Exemplars: convertible, eligible.

22. -ic

Pronunciation: /ək/.

Meaning: pertaining to, characteristic of, the science or art of.

Function: adjectival.

Bases: free and bound productive mono- and polymorphemes; a Greek suffix often affixed to Greek bases and Greek compounds.

Pre-occurring suffixes, -al, -an, -ance, -el, -et, -ify, -on, -y: metallic, organic, romantic, angelic, magnetic, specific, electronic, economic.

Post-occurring suffixes, -al, -ine, -ity, -ly: vertical, medicine, electricity, publicly.

Post-occurring epenthetic element and suffix, -i-an: magician.

Affixation processes: base-final y → ∅, e.g., majestic; final ce → t, e.g., romantic; c /k/ is spirantized to /s/ before i-initial suffix, e.g., criticize; change to stress on syllable preceding -ity, e.g., publicity; vowel change to short stressed vowel preceding -ic, e.g., tonic; final c of suffix is palatalized to /š/ when followed by epenthetic and suffix, -i-an.

Frequency: 9.

Exemplars: cubic, heroic, political.

23. -ie [cf. -y]

Pronunciation: /i/.

Meanings: diminutive, familiarity, endearment.

Function: nominal.

Bases: primarily free mono- and bimorphemes; many words that include this suffix are proper names, e.g., Jackie, Nellie; diminutives with ie are sometimes an alternate spelling of diminutives with -y, e.g., dollie, dolly.

Post-occurring suffix, -s: (series), species.

Affixation process: base-final c is palatalized to /š/ by this iV suffix, e.g., species.

Frequency: 5.

Exemplars: auntie, birdie, brownie, movie, (prairie).

24. -ify

Pronunciation: /əfay/.

Meanings: do, make, cause.

Function: verbal.

Bases: both bound and free productive mono- and polymorphemes.

Post-occurring suffixes, -er, -ic: modifier, specific.

Post-occurring epenthetic element and suffix, -at-ion: identification.

Affixation process: final y (of -ify) → ic, e.g., significant.

Frequency: 3.

Exemplars: classify, fortify, rectify, unify.

25. -in

Pronunciation: /ən/.

Meaning: pertaining to, characteristic of.

Function: nominal.

Bases: bound, unproductive mono- and bimorphemes.

Post-occurring suffixes, -al, -ate, -ia, -ist: original, originate, Virginia, violinist.

Affixation process: stress and vowel change, e.g., vírgin → Virgínia.

Frequency: 8.

Exemplars: cabin, Martin, raisin, robin.

26. -ine

Pronunciations: /ayn/, /in/; /ən/.

Pronunciation variations: suffix vowel varies with different bases and with additional affixation.

Meanings: a substance, characteristic of, pertaining to.

Function: nominal, occasionally verbal and adjectival.

Bases: bound, unproductive mono- and bimorphemes.

Pre-occurring suffixes, -age, -ic: imagine, medicine.

Post-occurring suffixes, -able, -ary, -ate, -er, -ery, -ion: (imaginable), (imaginary), vaccinate, mariner, machinery, (opinion).

Pre-occurring epenthetic element, -u-: genuine.

Post-occurring epenthetic element and suffix, -at-ion: examination.

Affixation processes: vowel change, e.g., opine /opáyn/ → opinion /opínyən/; stress and vowel change, e.g., maríne → máriner.

Frequency: 7.

Exemplars: valentine, submarine; (feminine), masculine.

27. -ion

Pronunciations: /yən/, /iən/, palatalization + /ən/.

Pronunciation variations: following l or n, pronunciation is /yən/, e.g., onion, million; following p or d it is /iən/, e.g., champion, accordion; in all other environments, pronunciation is /ən/ and the preceding consonant is palatalized, e.g., action; stress is always on syllable preceding -ion.

Meanings: act or state of.

Function: usually nominal.

Bases: usually free bimorphemes that include prefixes.

Pre-occurring suffixes, -ate, -ite: circulation, opposition.

Post-occurring suffixes, -able, -al, -ate, -ery, -ize: fashionable, conditional, affectionate, stationery, revolutionize.

Pre-occurring epenthetic elements, -at-, -it-: conservation, position.

Affixation processes: preceding consonant is palatalized as follows: following l or n, base-final s is /š/, e.g., propulsion, mansion; base-final ss is /š/, e.g., mission; following a vowel or r, base-final s is /ž/, e.g., decision, excursion; following s or n, base-final t is /č/, e.g., question, attention; following a vowel or consonant other than s or n, base-final t is /š/, e.g., station, action; following a vowel, base-final g is /ǰ/, e.g., legion.

Frequency: 10.

Exemplars: union, inscription, intention, vision.

28. -ish

Pronunciation: /əš/.

Meaning: make or do (verbal); resembling (adjectival).

Functions: verbal or adjectival.

Bases: primarily bound monomorphemes (verbal); free mono- and bimorphemes (adjectival).

Pre-occurring suffix, -le: establish.

Post-occurring suffixes, -er, -ly, -ment, -ness: publisher, foolishly, establishment, selfishness.

Affixation processes: final consonant doubling after single vowel when base is free, e.g., reddish, but not radish.

Frequency: 7.

Exemplars: accomplish, childish, diminish, finish.

29. -ist

Pronunciation: /əst/.

Meanings: one who does, an agent.

Function: nominal.

Bases: primarily free mono- and bimorphemes.

Pre-occurring suffixes, -al, -an, -ence, -in, -or: capitalist, organist, scientist, violinist, motorist.

Post-occurring suffixes, -er, -ic, -ice, -ry: minister, artistic, armistice, chemistry.

Affixation processes: base-final vowel → ∅ before vowel-initial suffix, e.g., piano → pianist; final ce → t, e.g., science → scientist; suffix -ist receives primary stress before post-occurring -ic, e.g., characteristic.

Frequency: 2.

Exemplars: artist, specialist, tourist.

30. -it

Pronunciation: /ət/.

Meaning: nominalizes a bound base.

Function: nominal (also functions verbally).

Bases: primarily bound monomorphemes.

Post-occurring suffixes, (-al), -ance, -ant, -or: (orbital), inheritance, inhabitant, visitor.

Post-occurring epenthetic element and suffix, -u-al: spiritual.

Affixation process: final t of suffix is palatalized to /č/ before -u-al.

Frequency: 4.

Exemplars: circuit, deposit, unit, visit.

31. -ity, -ety

Pronunciation: /əti/.

Spelling variation: following base-final i of y → i, initial suffix vowel is e.

Meanings: a state of quality.

Function: nominal.

Bases: primarily free polymorphemes.

Pre-occurring suffixes, -able, -al, -ar, -ible, -ic, -id, (-ile), -ive, -le, -or, -ous, -une, (-ure): capability, vitality, popularity, responsibility, electricity, rapidity, (facility), activity, stability, minority, generosity, opportunity, (maturity).

Affixation processes: base-final le → il, e.g., ability; base-final c /k/ → c /s/, e.g., electricity; pre-occurring suffix -ous → -os, e.g., generosity; vowel preceding -ity receives primary stress and is usually short.

Frequency: 7.

Exemplars: cavity, gaiety, intensity, reality, variety.

32. -ive

Pronunciation: /əv/.

Meanings: tendency toward some action.

Function: adjectival.

Bases: primarily free bimorphemes that include prefixes.

Pre-occurring suffixes, -ate, -ute: creative, executive.

Post-occurring suffixes, (-al), -ia, -ity, -ly, -ness: (festival), Olivia, activity, respectively, effectiveness.

Pre-occurring epenthetic elements, -at-, -it-: representative, sensitive.

Affixation processes: base-final d → s, e.g., extend → extensive; post-occurring suffix -ity causes stress on -ive, e.g., activity.

Frequency: 6.

Exemplars: captive, decisive, positive, productive.

33. -ize, -ise

Pronunciation: /ayz/.

Spelling variation: suffix consonant alternates.

Meaning: causing to be.

Function: verbal.

Bases: primarily free bimorphemes.

Pre-occurring suffixes, -al, -an, -ic, (-ile), -ion, -le, (-on), (-or), -ory: realize, organize, criticize, (fertilize), revolutionize, stabilize, (patronize), (vaporize), memorize.

Post-occurring suffixes, -er, -ment: stabilizer, advertisement.

Pre-occurring epenthetic element, -it-: sensitize.

Post-occurring epenthetic element and suffix, -at-ion: organization.

Affixation processes: base-final c /k/ → c /s/, e.g., criticize; base-final y → ∅, e.g., memorize; base-final le → il, e.g., stabilize.

Frequency: 3.

Exemplars: dramatize, specialize.

34. -le

Pronunciation: /əl/.

Meaning: nominalizes a bound base.

Functions: nominal (also functions verbally).

Bases: primarily bound, unproductive monomorphemes.

Post-occurring suffixes, -able, (-ance), -ar, -ate, -er, -ish, -ity, -ly, -ment, -ness, -some, (-y): recyclable, (resemblance), singular, circulate, sprinkler, establish, ability, gently, settlement, gentleness, troublesome, (assembly).

Affixation processes: base-final consonant doubled after single vowel, e.g., topple; le → ul before -ar, (-ous), e.g., angular, (miraculous); le /əl/ → /l/, e.g., scribbler; le → ∅ before -ly, e.g., simply.

Frequency: 10.

Exemplars: bicycle, circle, little, sparkle.

35. -less

Pronunciation: /ləs/.

Meaning. without.

Function: adjectival.

Bases: usually free nominal monomorphemes, many of which also take -ful.

Pre-occurring suffixes, -ion, -or, -y: motionless, colorless, penniless.

Post-occurring suffixes, -ly, -ness: carelessly, helplessness.

Frequency: 4.

Exemplars: breathless, endless, lifeless, restless.

36. -ly

Pronunciation: /lI/.

Meanings: like (adjectival); in a specified manner (adverbial).

Functions: adjectival and adverbial.

Bases: usually free mono- and bimorphemes.

Pre-occurring suffixes, (-able), -al, -ant, -ate, -el, -en, -ent, -er, -ful, (-ible), -ish, -ite, -ive, -le, -less, -ous, -y: (probably), finally, pleasantly, fortunately, cruelly, heavenly, evidently, westerly, successfully, (incredibly), foolishly, definitely, respectively, gently, carelessly, joyously, easily.

Post-occurring suffix, -ness (on adjectival form): loveliness.

Affixation processes: base-final le → ∅, e.g., probably; double consonant exists at morpheme boundary, e.g., equally.

Frequency: 10.

Exemplars: affectionately, completely, generally, sufficiently.

37. -ment

Pronunciation: /mənt/.

Meanings: indicates product, means, action, or state.

Function: nominal.

Bases: primarily free verbal bimorphemes that include prefixes.

Pre-occurring suffixes -age, -ise, -ish, -le, -ure: management, advertisement, accomplishment, settlement, measurement.

Post-occurring suffixes, -al, (-ary): departmental, (elementary).

Affixation processes: consonant cluster simplification at morpheme boundary, e.g., government /gʌ́vərmənt/.

Frequency: 8.

Exemplars: assignment, entertainment, payment, statement.

38. -ness

Pronunciation: /nəs/.

Meaning: state, quality, or condition of being.

Function: nominal.

Bases: free adjectival mono- and bimorphemes, some of which include suffixes.

Pre-occurring suffixes, -er, -ful, -ish, -ite, -ive, -le, -less, -ly, -ous, -y: wilderness, usefulness, selfishness, politeness, effectiveness, gentleness, carelessness, loveliness, nervousness, readiness.

Affixation processes: double consonant exists at morpheme boundary when base is n-final, e.g., meanness; consonant cluster simplification at morpheme boundary, e.g., kindness /káynəs/.

Frequency: 4.

Exemplars: business, happiness, richness.

39. -on

Pronunciation: /ən/.

Meanings: nominalizes a bound base.

Function: nominal (also functions verbally sometimes).

Bases: bound, unproductive monomorphemes.

Post-occurring suffixes, -able, -al, -er, (-ize), -ous: reasonable, personal, prisoner, (patronize), poisonous.

Affixation processes: suffix vowel is sometimes deleted in pronunciation, e.g., prisoner /príznər/.

Frequency: 9.

Exemplars: apron, gallon, tendon, wagon.

40. -or

Pronunciation: /ər/.

Meaning: agentive; state, quality, or activity.

Function: nominal.

Bases: both bound and free mono- and polymorphemes.

Pre-occurring suffixes, -ate, (-el): dictator, (counselor).

Post-occurring suffixes, -able, -ate, -er, -ful, -ia, -ist, (-ity), -ite, (-ize), -less, -ous, -ship: favorable, elaborate, laborer, colorful, Victoria, motorist, (majority), favorite, (vaporize) colorless, humorous, dictatorship.

Post-occurring epenthetic element and suffix, -at-ory: laboratory.

Affixation processes: stress and suffix vowel change with addition of -i-ous, -ity, e.g., victor /víktər/ → victorious /vɪktóriəs/, major /méjər/ → majority /məjórəti/; suffix vowel may be deleted with further suffixation, e.g., favorite /févrət/, laboratory /lǽbrətòri/.

Frequency: 9.

Exemplars: actor, collector, editor, spectator.

41. -ory

Pronunciation: /óri/.

Meanings: often collective or locative.

Function: nominal.

Bases: both bound and free mono- and polymorphemes.

Post-occurring suffixes, -able, -al, -an, -ic, -ize, -ly: memorable, memorial, historian, historic, memorize, satisfactorily.

Pre-occurring epenthetic elements, -at-, (-it-): laboratory, (territory).

Affixation processes: suffix-final y → i before -al, -an, -ly, e.g., memorial; suffix-final y → ∅ before -able, -ic, -ize, e.g., memorize; stress may change with further affixation; suffix vowel may be deleted, e.g., satisfactorily /sæ̀təsfǽktrəli/.

Frequency: 3.

Exemplars: factory, observatory.

42. -o(u)s

Pronunciation: /əs/.

Spelling variation: when stressed before -ity, suffix spelling is -os, e.g., generosity.

Meaning: possessing, having, or full of.

Function: adjectival.

Bases: both free and bound, productive mono- and bimorphemes.

Pre-occurring suffixes, -age, (-el), -er, -on, -or, -ory, -ure, -y: outrageous, (marvelous), dangerous, poisonous, humorous, victorious, adventurous, studious.

Post-occurring suffixes, -ity, -ly, (-y): generosity, seriously, (jealousy).

Affixation processes: vowel in preceding syllable can be deleted if word is r- or n-final, e.g., dangerous /dénǰrəs/, poisonous /póyznəs/; stress and vowel pronunciation are changed in bases having final -age, e.g., courage /kə́rəǰ/ → courageous /kəréǰəs/.

Frequency: 8.

Exemplars: famous, furious, generous, nervous.

43. -ship

Pronunciation: /šɪp/.

Meanings: condition of or status of.

Function: nominal.

Bases: primarily free bimorphemes referring to humans.

Pre-occurring suffixes, -ar, -en, -er, -ion, -or: scholarship, citizenship, leadership, relationship, dictatorship.

Frequency: 2.

Exemplars: friendship, hardship, sportsmanship.

44. -some

Pronunciation: /səm/.

Meaning: being or tending to be.

Function: adjectival.

Bases: free mono- and bimorphemes.

Pre-occurring suffixes, -en, -le: burdensome, troublesome.

Affixation process: consonant cluster simplification at base-suffix boundary, e.g., handsome /hǽnsəm/.

Frequency: 1.

Exemplars: lonesome, threesome, tiresome, wholesome.

45. -t

Pronunciation: /t/.

Meaning: condition of.

Function: nominal.

Bases: free mono- and bimorphemes that are usually verbals.

Frequency: 1.

Exemplars: complaint, height, joint, portrait, weight.

46. -th

Pronunciation: /θ/.

Meaning: result of act indicated in base (nominal); numerical quality suggested in base (adjectival).

Function: nominal and adjectival.

Bases: free monomorphemes, or free bases that are suffixed with -teen.

Pre-occurring suffixes, -en, -teen: eleventh, sixteenth.

Post-occurring suffixes, -en, -ful, -y: lengthen, healthful, wealthy.

Affixation processes: base-final d or t → ∅, e.g., death, eighth; long vowel of base → short vowel, sometimes also changing the vowel grapheme, e.g., deep → depth, heal → health, wide → width; base-final ve → f, e.g., five → fifth.

Frequency: 5.

Exemplars: fourth, length, truth, twelfth, warmth.

47. -ty

Pronunciation: /tɪ/.

Meaning: a condition or quality (nominal); multiple of ten (adjectival).

Function: nominal and adjectival.

Bases: primarily free mono- and bimorphemes; a few bound bases.

Pre-occurring suffixes, -ain, -al, -el, -en, -er: certainty, loyalty, cruelty, seventy, property.

Post-occurring suffix, -ful: plentiful.

Affixation processes: base vowel changes from long vowel to short vowel, e.g., five → fifty; base final ve → f, e.g., fifty; base-final t → ∅, e.g., eighty; unique spelling changes in number bases, e.g., four → forty, three → thirty (metathesis), two → twenty.

Frequency: 4.

Exemplars: liberty, safety, penalty, poverty.

48. -ude

Pronunciation: /ud/.

Meaning: that which is (equivalent to -ness).

Function: nominal.

Bases: usually bound monomorphemes, always followed by epenthetic element -it-.

Pre-occurring epenthetic element, -it- (always precedes -ude): gratitude.

Affixation process: base-final ng /ŋ/ → /nǰ/, e.g., long /lɔŋ/ → longitude /lɔ́nǰətu̍d/.

Frequency: 1.

Exemplars: multitude, altitude.

49. -ure

Pronunciations: /yər/, palatalization + /ər/.

Meaning: process, act, being, state, rank.

Function: nominal.

Bases: both bound and free mono- and polymorphemes, including a few Greek and Latin compounds.

Pre-occurring suffix, -ate: temperature.

Post-occurring suffixes, -al, -er, -ly, -ment, -ous, y: natural, manufacturer, leasurely, measurement, adventurous, treasury.

Pre-occurring epenthetic elements, -at-, -it-: miniature, furniture.

Affixation processes: vowel in -ate → ∅, e.g., literature /lítərčər/, temperature /témpərčər/ or /tempəčər/; ur(e) /ər/ → /r/, e.g., natural /nǽčrəl/; the following base-final consonants are palatalized: d /ǰ/, e.g., procedure; s /ž/, e.g., exposure; ss /š/, e.g., pressure; t /č/, e.g., venture; z /ž/, e.g., azure; long vowel of base → short vowel, e.g., please → pleasure, post → posture.

Frequency: 7.

Exemplars: figure, failure; agriculture, architecture, azure, capture, exposure, legislature.

50. -us

Pronunciation: /əs/

Meaning: nominalizing suffix retained from Latin.

Function: nominal.

Bases: bound, unproductive mono- and polymorphemes including many names of plants and animals.

Pre-occurring epenthetic element, -i-: genius, radius.

Frequency: 4.

Exemplars: cactus, chorus, circus, citrus, focus, fungus, humus, minus, papyrus, virus, walrus.

51. -ward

Pronunciation: /wərd/.

Meaning: indicates direction toward.

Function: adjectival.

Bases: usually free monomorphemes.

Pre-occurring suffix, -er: afterward.

Post-occurring suffix, -s (adverbial): backwards.

Affixation process: final silent e is irregularly deleted before consonant-initial -ward, e.g., forward; pronunciation of base vowel and suffix merge, e.g., toward.

Frequency: 3.

Exemplars: downward, Edward, homeward, onward, southward, windward.

52. -y

Pronunciation: /i/.

Meaning: the quality of the meaning in the base (adjectival); the condition of the meaning in the base, or diminutiveness (nominal).

Function: adjectival, nominal, and occasionally verbal.

Base: both bound and free mono- and polymorphemes.

Pre-occurring suffixes, -ate, -ent, -er, -et, -le, -ous, -th, -ure: privacy, currency, silvery, prophecy, assembly, jealousy, healthy, injury.

Post-occurring suffixes, -age, -al, -an, -ar, -er, -et, -ful, -ly, -ness, -ous: marriage, colonial, comedian, familiar, carrier, Harriet, pitiful, easily, business, furious.

Affixation processes: base-final t(e) → c, e.g., prophecy, presidency; er → r (sometimes), e.g., wintry.

Frequency: 10.

Exemplars: buddy, heavy, hurry, lazy, marry, photography.

III. Epenthetic Elements

1. -at-

Pronunciations: /ət/, /əč/; /et/, /eš/.

Pronunciation variations: final t is palatalized to /š/ before -ion and to /č/ before -ure.

Bases: bound and free productive mono- and bimorphemes.

Post-occurring suffixes, -ion, -ive, -or, -ory, -ure, -us: foundation, (imperative), spectator, observatory, signature; (apparatus).

2. $-i_1-$

Pronunciation variations: -i- is /i/ primarily following d and r, e.g., radius, notorious; -i- is /y/ primarily following l and n, e.g., civilian, genius; -i- merges with and palatalizes c to /š/, t to /š/ or /č/, and g and d to /ǰ/, e.g., special, initial, Christian, religious, cordial; even when proceding consonant is palatalized, -i- /i/ is retained before the stressed suffixed -ate, e.g., appreciate.

Bases: usually bound, productive mono- and bimorphemes; epenthetic -i- is found most often in free bases in which it merges with the preceding consonant, e.g., substantial.

Pre-occurring suffixes, -ance, -ence, -ent, -er, -ic: financial, influential, residential, appropriate, politician.

Post-occurring suffixes, -al, -an, -ance, -ant, -ar, -ate, -ent, -er, -or, -ous, -us: centennial, partial; guardian, civilian, Christian; (allegiance); (valiant); (peculiar); (abbreviate), (the noun, associate); obedient, convenient, sufficient; (soldier); superior, behavior; spacious; genius.

3. $-i_2-$

Pronunciations: /ə/; /ɪ/.

Pronunciation variations: epenthetic -i- is usually unstressed, e.g., sacrifice; however, some four-syllable words that are suffixed have stress on the epenthetic syllable, e.g., altimeter, magnificent.

Bases: primarily bound Latin or Greek compounds, with epenthetic -i- functioning as the connector.

Co-occurring bases, art + fic, (sacr) + fic, (hel) + port, man + (cur); (mun) + (cip), part + (cip): artifice, sacrifice, heliport, manicure; municipal, participate.

4. -ic-

Pronunciations: /ək/; /ɪš/, /ɪk/.

Pronunciation variations: final c is palatalized to /š/ and epenthetic syllable is stressed before -i-al, e.g., judicial.

Bases: free and bound mono- and bimorphemes.

Post-occurring suffixes, -al, -ate, -le, -ule: typical, communicate, particle, ridicule.

Post-occurring epenthetic elements + suffixes, -i-al, -ul-ar: (judicial), perpendicular.

5. -it-

Pronunciations: /ət/, /əč/; /ɪš/.

Pronunciation variations: final t is palatalized to /č/ before -ure; final consonant is palatalized to /š/ and -it- is stressed before -ion, e.g., addition.

Bases: primarily bound monomorphemes.

Post-occurring suffixes, -al, -ant, -ary, -ate, -ic, -ion, -ive, -or, -ory, -ude, -ure: (hospital), (hesitant), (solitary), (imitate), politic, positive, (monitor), (territory), longitude, (furniture); position.

6. -o-

Pronunciations: /ə/; /a/.

Pronunciation variations: epenthetic -o- is usually unstessed, e.g., hydroplane; however, some four-syllable words that are suffixed have stress on the epenthetic syllable, e.g., astronomy, barometer.

Bases: primarily bound Latin or Greek compounds, with epenthetic -o- functioning as the connector.

Co-occurring bases, phon + graph, (strat) + sphere, (psych) + log, speed + met, (therm) + met: phonograph, stratosphere; psychology, speedometer, thermometer.

7. -u-

Pronunciations: /yu/; /u/ and palatalizes preceding consonant.

Pronunciation variation: base-final consonants d /d/, s /s/, and t /t/ are palatalized to /ǰ/, /ž/, and /č/, respectively.

Bases: free and bound mono- and bimorphemes.

Post-occurring suffixes, -al, -ary, -ate, -el, -ent, -ine, -ous: annual, January, extenuate, Samuel, genuine, conspicuous; eventual, individual, visual, graduate, situate, (constituent).

8. -ul-

Pronunciation: /yəl/; /əl/ and palatalizes preceding consonant.

Pronunciation variation: base-final consonants t /t/ and d /d/ are palatalized /č/ and /ǰ/ respectively.

Bases: free and bound mono- and bimorphemes.

Post-occurring suffixes, -ar, -ate: globular, pendular, regular, tubular; (congratulate), (modulate), capsulate, regulate, speculate.

Pre-occurring epenthetic element, -ic-: perpendicular.

Appendix D

AFFIXATION PROCESSES

A. Pronunciation changes

1. Stress changes.

Stress may shift with suffixation. Changes that occur with highest frequencies (often involving vowel changes) are:

a. -ˊ → ˊ-- (e.g., defíne → définite, províde → próvidence)

b. ˊ- → -ˊ- (e.g., édit → edítion, óffice → offícial)

or with two-syllable suffixation,

ˊ- → -ˊ-- (e.g., áctive → actívity, Víctor → Victória)

c. ˊ-- → -ˊ-- (e.g., índustry → indústrial, mýstery → mystérious)

d. Because of high frequencies of <u>at</u>-<u>ion</u> and -<u>it</u>-<u>ion</u>:
-ˊ → ˋ-ˊ- (e.g., dispóse → dispòsítion, infórm → ìnformátion)

2. Consonant pronunciation changes.

a. Palatalization.

Suffixes that begin with underlying /y/ merge with base-final <u>c</u>, <u>d</u>, <u>g</u>, <u>s</u>, <u>ss</u>, <u>t</u>, <u>x</u>, and <u>z</u>. Such suffixes are unstressed and either have initial <u>i</u> or <u>u</u> (i.e., -<u>ion</u>, -<u>ure</u>) or are preceded by epenthetic -<u>i</u>- or -<u>u</u>-. The palatalizing process results in the following pronunciations:

<u>c</u> /k/ + <u>i</u> → /š/ (e.g., politic → politician)

<u>c</u> /s/ + <u>i</u> → /š/ (e.g., office → official)

<u>d</u> /d/ + <u>u</u> → /j/ (e.g., grade → gradual)

<u>s</u> /s/ + <u>i</u> → /ž/ (e.g., precise → precision)

<u>s</u> /z/ + <u>i</u> → /ž/ (e.g., televise → television)

<u>s</u> /z/ + <u>u</u> → /ž/ (e.g., use → usual)

<u>ns</u> /ns/ + <u>i</u> → /nš/ (e.g., expanse → expansion)

<u>ss</u> /s/ + <u>i</u> → /š/ (e.g., congress → congressional)

<u>ss</u> /s/ + <u>u</u> → /š/ (e.g., press → pressure)

<u>t</u> /t/ + <u>i</u> → /š/ (e.g., dictate → dictation)

t /t/ + u → /č/ (e.g., create → creature)

st /st/ + i → /sč/ (e.g., digest → digestion)

x /ks/ + u → /kš/ (e.g., sex → sexual)

z /z/ + i → /ž/ (e.g., glaze → glazier)

z /z/ + u → /ž/ (e.g., seize → seizure)

b. Spirantization.

c /k/ → /s/ (e.g., medic → medicine)

c. Voiceless → voiced.

s /s/ → /z/ (e.g., louse → lousy)

th /θ/ → /ð/ (e.g., worth → worthy)

d. Miscellaneous.

mb /m/ → /mb/ (e.g., crumb → crumble)

sc /s/ → /sk/ (e.g., muscle → muscular)

st /st/ → /s/ (e.g., moist → moisten)

3. Vowel pronunciation changes (excluding stressed vowels that become destressed, or vice versa, with affixation).

a. Long vowel → short vowel.

a /e/ → /æ/ (e.g., cave → cavern)

e /i/ → /ɛ/ (e.g., hero → heroine)

ea /i/ → /ɛ/ (e.g., heal → health)

i /ay/ → /ɪ/ (e.g., child → children)

y /ay/ → /ɪ/ (e.g., cycle → bicycle)

o /o/ → /a/ (e.g., tone → tonic)

ow /o/ → /a/ (e.g., know → knowledge)

u /u/ → /ʌ/ (e.g., produce → production)

b. Miscellaneous.

a /a/ → /ɛ/ (e.g., bar → barrier)

ow /aw/ → /ʌ/ (e.g., south → southern)

4. Final le /əl/ → /l/.

Pronunciation change: vowel in /əl/ is deleted in pronunciation, leaving a nonsyllabic /l/.

Bases: free polymorphemes.

Before suffixes -able, -ance, -ar, -er (highest frequency), -et, -ing, -ish: recyclable, resemblance, burglar, scribbler, triplet, kindling, establish.

Other affixation processes: final silent e of suffix -le is deleted; vowel change on one word (i.e., stable → establish, /e/ → /æ/).

Frequency: 9.

5. Final or medial /ər/ → /r/.

Pronunciation change: in bases as well as in suffixes, the vowel in /ər/ is deleted in pronunciation, leaving a nonsyllabic /r/.

Bases: free and bound polymorphemes.

In suffixes -ary, -er, -ery (high frequency), -or, -ory (high frequency): boundary, suffering, slippery, flavoring, memory.

Before suffixes -able, -al, -ate, -ence, -ent, -in, -ing, -ly, -ous: miserable, several, separate, conference, different, aspirin, suffering, satisfactorily, prosperous.

Before epenthetic -at-: laboratory.

Other affixation processes: y → i before another suffix (e.g., satisfactorily); consonant doubling before Vry suffix, and after a single base vowel (e.g., robbery); final silent e deleted before another suffix (e.g., nursery); stress or vowel change (e.g., confér → cónference, lábor /lébər/ → láboratory /lábrətòri/).

Frequency: 9.

B. Orthographic features

1. Doubled consonant at prefix-base boundary.

Orthographic feature: prefix-final consonant has completely assimilated to base-initial consonant; a few prefix-base combinations happen to have identical consonants at their boundaries (e.g., dissatisfy).

Bases: primarily bound Latin or Greek mono- and polymorphemes; a few free bases.

After prefixes ad- (highest frequency), con-, dis-, ex- in-$_1$, in-$_2$, inter-, ob-, sub-, syn-, un-: affect, correct, differ, efficient, illustrate, illegal, intellect, occur, supply, symmetry, unnecessary.

Frequency: 13.

2. Doubled consonant at base-suffix boundary.

Orthographic feature: addition of suffix results in doubled consonant at morpheme boundary.

Bases: primarily free polymorphemes, each usually including suffix -al (highest frequency), -el, or -ful.

Before suffix -ly: equally, cruelly, gracefully; (also) heelless, meanness.

Other affixation processes: in the suffix /əl/ or /fəl/, many speakers alternate between completely deleting the vowel and not stressing it (e.g., awfully /ɔ́fli/ or /ɔ́fəli/, accidentally /æksədéntli/ or /æksədéntəli/).

Frequency: 10.

C. Spelling changes

1. Assimilation.

a. Spelling and pronunciation of final consonant of prefix is altered to become more like (or exactly like) the following consonant. Sometimes there is complete assimilation (e.g., sub + ceed → succeed), and sometimes there is only partial assimilation (e.g., con + pose → compose).

b. Prefixes that assimilate, and the consonants to which they assimilate.

ad- → b, c, f, g, l, m, n, p, r, s, t.

con- → l, m, r; partially, to m before b, p.

dis- → f.

en- → partially, to m before b, p.

ex- → f.

in- → l, m, r; partially, to m before b, p.

inter- → l.

ob- → c, f, p.

sub- → c, f, g, p, r.

syn- → l, m; partially, to m before b, p, ph.

2. Final silent e → ∅.

Spelling changes: final silent e on either the base or the suffixed base is deleted before vowel-initial suffixes and epenthetic elements, e.g., global, arrival; outside of a very few irregularities (e.g., mileage), the major exception is where e is marking a c /s/ or g /ǰ/ before a suffix with initial a or o (e.g., peaceable, outrageous); final silent e is also deleted before a very few consonant-initial suffixes, expecially when base has final Ve and V is not e (e.g., argument).

Bases: free mono- and polymorphemes.

Before vowel-initial suffixes -able, -age, -al, -an, -ance, -ant, -ar, -ary, -ate, -en, -ence, -ent, -er, -ery, -ess, -et, -ia, -ible, -ic, -ie, -ify, -ine, -ion, -ish, -ist, -ity, -ive, -ize, -or, -ory, -ous, -ure, -y: disposable, storage, bridal, Roman, insurance, servant, polar, imaginary, fortunate, stolen, residence, urgent, diver, refinery, princess, triplet, Georgia, sensible, basic, movie, purify, imagine, circulation, establish, communist, intensity, relative, fertilize, regulator, sensory, porous, exposure, noisy.

Before consonant-initial suffixes -ful, -th, -ty, -ward: awful, truth, width, fifty, forward.

Before epenthetic elements -at-, -i-, -ic-, -it, -u-: observatory, combination; behavior, spacious; typical; puritan, proposition; annual, sensuous, usual, situate, graduate.

Other affixation processes: suffix -ion palatalizes preceding t to /š/ (e.g., circulation) and s to /ž/ (e.g., decision) or /š/ (e.g., tension); suffix -ure palatalizes preceding t to /č/ (e.g., creature) and s to /ž/ (e.g., pleasure); epenthetic -i- palatalizes preceding c and t to /š/ (e.g., spacious, residential), and epenthetic -u- palatalizes s to /š/ (e.g., sensuous) or /ž/ (e.g., usual), t to /č/ (e.g., situate), and d to /ǰ/ (e.g., graduate); suffixation causes stress or vowel change (e.g., relate → rélative, type → typical); final le /əl/ → /l/ (e.g., tickle → ticklish); unusual spelling change may result (e.g., describe → description).

Frequency: 12.

3. Final le → ∅ before ly.

Pronunciation: /l/.

Spelling change: deleting final le of suffixes -able, -ible, and -le itself before additional suffix -ly: considerably, favorably, sensibly, visibly, idly, simply.

Bases: free polymorphemes.

Frequency: 2.

4. Final vowel before vowel-initial suffix → ∅.

Spelling change: base-final vowel is deleted before vowel-initial suffix.

Bases: primarily free polymorphemes that are proper nouns (names of places or peoples).

In suffix -ia: India + an, Russia + an.

Before suffixes -al, -an (highest frequency), -ist: ideal, Mexican, pianist.

Other affixation processes: stress may change (e.g., piáno → píanist).

Frequency: 4.

5. Final y → ∅.

Spelling change: base-final y of suffix -ety, -ory, or -y itself is deleted with additional suffixation (e.g., proprietor, memorize, occupation).

Bases: many Greek, a few Latin, free mono- and bimorphemes.

Before suffixes -able, -ent, -er, -ic (highest frequency), -ist, -ize, -or: memorable, student, geographer, economic, colonist, sympathize, proprietor.

Before epenthetic element, -at-: occupation.

Other affixation processes: addition of suffix -ic causes stress change to preceding syllable (e.g., astrónomy → astronómic); addition of epenthetic -at- plus -ion causes primary stress change to the epenthetic syllable (e.g., óccupy → òccupátion).

Frequency: 7.

6. Final y → ic.

Spelling change: spelling of word with final y (as part of the base or suffix) may change to ic before additional suffixation.

Pronunciation: /ək/, /əs/.

Pronunciation variation: final c is spirantized to /s/ before a suffix having initial e.

Bases: primarily Greek-based polymorphemes.

Before suffixes -ance, -ant, -ate, -ence, -ent: significance, applicant, certificate, magnificence, magnificent.

Before epenthetic element, -at-: multiplication.

Frequency: 3.

7. Final y → i.

Spelling change: base-final y or suffix-final y becomes i before both vowel-initial (except i) and consonant-initial suffixes.

Pronunciations: /ay/, /ɪ/, /y/, /ø/.

Pronunciation variations: i is generally pronounced the same as the y it replaces (e.g., apply → appliance, unify → unified, fury → furious, merry → merriment); one exception is that, following l, i is /y/ before a vowel-initial suffix (e.g., Italian /ɪtǽlyən/); another exception is that i is /ø/ in a few words (e.g., business /bíznəs/).

Bases: primarily free bimorphemes.

Before suffixes -able, -age, -al, -an, -ance, -ar, -ed, -en, -er, -et, -ful, -ly (highest frequency), -ment, -ness, -ous: reliable, marriage, memorial, comedian, appliance, familiar, unified, slain, carrier, Harriet, beautiful, daily, merriment, business, furious.

Other affixation processes: stress change in a few words (e.g., álly → alliance, cómedy → comédian, fámily → familiar).

Frequency: 11.

8. Final t(e) → c.

Spelling change: base-final t(e) changes to c /s/ before i or y.

Bases: free Latin and Greek polymorphemes.

In suffixes -ant, -ate, -ent (highest frequency), -et, and epenthetic element plus suffix, -i-ent: infancy, privacy, frequency, prophecy, efficiency.

Before suffix y (includes almost all occurrences): agency, democracy, (and words having one of the suffixes listed above).

Before epenthetic -i-: beneficial.

Other affixation processes: final silent e deleted (e.g., accuracy); stress change (e.g., bénefit → bènefícial).

Frequency: 4.

9. Final ce → t.

Pronunciations: /t/, /š/.

Pronunciation variation: final t is palatalized to /š/ before an iV combination.

Spelling change: base-final ce of suffixes -ance and -ence changes to t before the i-initial suffixes and before the epenthetic element -i-, as exemplified below.

Bases: primarily free bimorphemes.

Before suffixes -ic and -ist: romance → romantic, science → scientist.

Before epenthetic element -i-: substance → substantial (highest frequency), science → scientific.

Other affixation processes: final silent e of -ance and -ence is deleted; epenthetic -i- palatalizes t to /š/; suffixation may cause stress change (e.g., ínfluence → influéntial).

Frequency: 1.

10. Final consonant doubled following a single vowel.

Bases: free mono- and bimorphemes.

Before vowel-initial suffixes -age, -ar, -ary, -en, -ence, -ent, -er (highest frequency), -ery, -ess, -ic, -ie, -ion, -ish, -y: baggage, beggar, summary, flatten, occurrence, (excellent), batter, cannery, goddess, metallic, doggie-bag, rebellion, reddish, funny.

Before epenthetic element -i- /y/ and following r-final base, -i-er, -i-or: barrier, warrior.

Before consonant-initial suffix pronounced with an initial vowel, -le /əl/: snuggle.

Other affixation processes: suffixation causes stress or vowel change in a few isolated words (e.g., bar /bar/ → barrier /bǽryər/, excél → éxcellent, métal /métəl/ → metállic /mətǽlək/).

Frequency: 12.

11. Final d(e) → s.

Pronunciations: /s/, /š/, /ž/.

Pronunciation variation: addition of suffix -ion causes palatalization of final s to /š/ following n and to /ž/ following a vowel.

Bases: usually free bimorphemes.

Before suffix -ive, s is pronounced /s/: decisive, extensive.

Before suffix -ion, pronunciation of s varies: /š/ expansion, extension; /ž/ decision, explosion.

Frequency: 5.

12. Final le → il or ul.

Pronunciations: /ɪl/, /yəl/.

Pronunciation and spelling variations: final -le of suffixes -able, -ible, and -le itself change to il /ɪl/ before -ity; final le of -able, -acle, and -le itself change to ul /yəl/ before other suffixes, as exemplified below.

Bases: free polymorphemes.

Before suffix -ity, le → il: dependable → dependability, visible → visibility, noble → nobility.

Before suffixes -ance, -ar (highest frequency), -ary, -ate, and -ous, le → ul: amble → ambulance, spectacle → spectacular, vocable → vocabulary, circle → circulate, miracle → miraculous.

Other affixation processes: final silent e of -able, -acle, -ible, and -le is deleted; addition of suffix -ity causes stress on /ɪl/.

Frequency: 6.

13. final er → r.

Pronunciation change: suffix changes from /ər/ to /r/.

Spelling change: in base-final suffix -er, vowel e is deleted with addition of some suffixes.

Bases: free polymorphemes.

Before suffixes -al, -ance, -ate, -ess, -ous, -y (highest frequency): central, entrance, infiltrate, waitress, monstrous, hungry.

Before epenthetic element -at-: registration.

Other affixation process: addition of epenthetic -at- plus -ion causes change of primary stress to the epenthetic syllable (e.g., régister → règistrátion).

Frequency: 8.

14. Some low-frequency spelling changes.

Final f(e) → ve + s.
When a plural morpheme is added to a one-syllable free base with single final f or fe, the f(e) changes to ve before the plural -s: calf → calves, leaf → leaves, wife → wives.

Final t → ss (/t/ → /š/).
Before the palatalizing suffix -ion, words with a mit base change final consonant t to ss: commit → commission, transmit → transmission.

Base vowel ai → a (/e/ → /ə/, /æ/).
With suffixation, base secondary vowel ai /e/ followed by m or n changes to a, pronounced /æ/ or /ə/: exclaim → exclamation, grain → granite, vain → vanity.

Epenthetic consonants added.
b: humble, remember, thimble.
d: obedient, remainder.
g: gigantic.
n: alternate.
r: squadron.
t: chieftain, dramatic, fixture, horizontal, laughter.
y: lawyer.

Consonants deleted.
d: death, girth.
t: eighth, eighty.

Morpheme spelling altered.
age → eng: messenger, passenger.
ous → os: curiosity, generosity, monstrosity.

Frequency: 12.